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AUTHOR	Wessel, Janet A.
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ABSTRACT

The project developed and evaluated an individualized physical education curriculum (called I CAN) for trainable mentally retarded children, ages 5-14 years. The instructional system consists of a set of primary psychomotor skills curriculum resource materials for individualizing instruction and a competency-based teaching guide for diagnostic-prescriptive teaching. Used for designing the instructional system were six major criteria: diagnostic-prescriptive nature, replicability, flexibility, adaptability, interrelatedness, and accountability. Included in the I CAN program are primary skills in aquatics, body management, fundamental skills, and health/fitness. System evaluation focused on identifying deficiencies and alternatives in form, substance, and methodology related to the use of I CAN by classroom teachers and physical education specialists. Assessment and reassessment of student status occurred within the instructional setting. Learner impact data reported by student gains, grouped by skill and teacher type, indicated: (1) the effectiveness of the instructional system, and (2) replicability and transportability for both classroom and physical education specialists. (More than half the document consists of appendixes such as sample field test materials, working papers, evaluation handbook for the field test teachers, evaluation data tables, and revisions recommended by field test teachers.) (Author/DB)

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FINAL REPORT

Project No. 322718
Grant No. OEG-0-71-3905 (608)
Grant Periods June, 1971 thru December 31, 1974

Janet A. Wessel, Ph.D.
Project Director
Michigan State University
East Lansing, Michigan 48824

PROGRAMMATIC RESEARCH PROJECT IN PHYSICAL EDUCATION FOR THE MENTALLY RETARDED CHILD IN THE ELEMENTARY SCHOOL

June, 1975

U.S. Department of Health, Education and Welfare
Office of Education
Bureau of Education for the Handicapped

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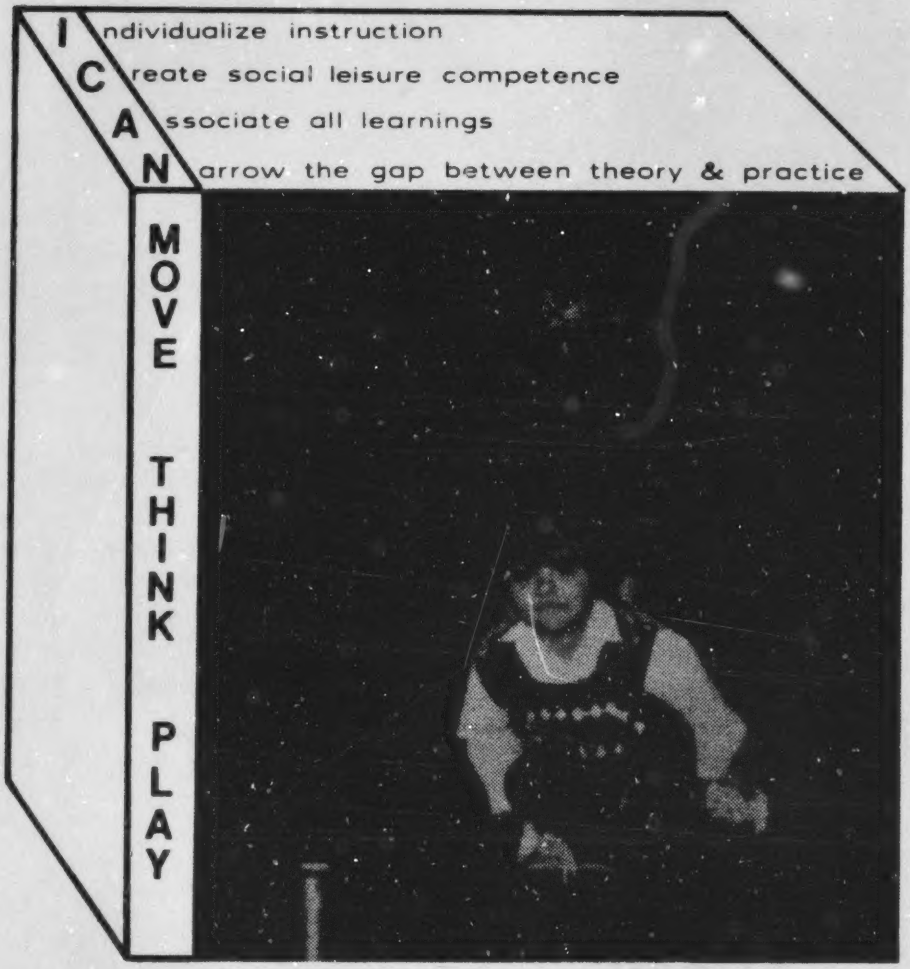

Individualize instruction
Create social leisure competence
Associate all learnings
Narrow the gap between theory & practice

MOVE
THINK
PLAY

ABSTRACT

The Programmatic Research Project in Physical Education for the Mentally Retarded Child in the Elementary School

The project, funded by the Bureau of Education for the Handicapped, United States Office of Education, June 1, 1971 through December 31, 1974, was charged with developing and formatively evaluating an individualized physical education curriculum for trainable mentally retarded children, ages 5-14 years. A procedural model for curriculum development and evaluation was specified as the tool for defining and organizing a mission-oriented progression from the origin of program goals and performance objectives to the target end products called the I CAN Instructional System: (1) primary psychomotor skills curriculum resource materials for individualizing instruction, and (2) competency-based teaching guide for diagnostic-prescriptive teaching. Six major criteria used for designing the instructional system were: diagnostic-prescriptive, replicability, flexibility, adaptability, interrelatedness and accountability. The I CAN Instructional System includes primary skills in aquatics, body management, fundamental skills and health/fitness. The evaluation focused on identifying deficiencies and alternatives in form, substance, and methodology related to the use of I CAN by classroom teachers and physical education specialists. Assessment and reassessment of student status occurred within the instructional setting. Teaching was prescribed to fit the assessed student's status. Learner impact data reported by student gains, grouped by skill and teacher type, clearly indicate: (1) the effectiveness of the instructional system, and (2) replicability and transportability for both classroom and physical education specialists.

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The curriculum research reported herein was performed pursuant to a grant with the Bureau of Education for the Handicapped, U.S. Offices of Education, Department of Health, Education and Welfare. Contractors undertaking such projects under government sponsorships are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official position of the Bureau of Education for the Handicapped.

U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
Bureau of Education for the Handicapped

EC 082717

PREFACE

This document is the Final Report of the Programmatic Research Project in Physical Education for the Mentally Retarded. The project was funded by the Bureau of Education for the Handicapped, United States Office of Education, from June 1, 1971, through December 31, 1974. The project was charged with developing, evaluating and disseminating validated curriculum resource materials in physical education for the trainable mentally retarded. The first funding period was devoted to the development of prototype materials. The second funding period involved the implementation of prototypes. The third funding period focused evaluation and revision of prototypes with preparation for wide-scale dissemination under the United States Office Copyright Program. To present the Final Report, the document is organized into two parts: the Curriculum Report and the Formulative Evaluation Report. Planning, evaluation and management strategies are described.

Planning Strategy. Three decisions were made about priorities. One: A task analysis strategy was to be the tool for defining organizing. Two: The focus was on elementary school trainable mentally retarded pupils rather than preschool through secondary school levels. Three: Four performance areas were selected for specifying priority primary motor skills. These performance areas were aquatics, body management, fundamental motor skills and health/fitness. During subsequent years work with cognitive, affective and additional or continuing motor skills will receive primary attention. Four: Psycho-motor skills were selected as priority skill areas rather than the affective/cognitive and related associated learning.

Evaluation Strategy. Systematic conversion of knowledge into practice is the primary charge of the curriculum development project. To achieve such a charge required the implementation of systematic instructional design model which incorporated the evaluation component at each step. The primary focus of the evaluative activity was to identify deficiencies in form, substance and methodology related to the use of I CAN. Equally important was the identification of plausible alternatives to suggested deficiencies. Evaluation activity focused on two problem areas: the appropriateness of the I CAN instructional system; and the effectiveness of the I CAN instructional system.

Management Strategy. Different people took responsibility for the tasks needed to take the primary motor skills from specification to the evaluation and target end product. The project director had the responsibility for the overall direction, planning and coordination. The materials development coordinator was responsible for day to day writing activities to see that the objectives were being met. The field test coordinator provided the link between public school personnel, project staff and project coordinators. The evaluation coordinator's responsibilities included developing the evaluation plan, conducting the project-related research and evaluation studies, and supervising all data collection, documentation and reporting. Periodic meetings and memos aided in keeping personnel informed and up to date. Forms, charts and procedures, which enabled all personnel to visualize the overall project activities, provided a framework upon which to operate.

Acknowledgements. The monumental task of conceiving, developing, field testing, revising and preparing for final publication the I CAN Individualized Physical Education Curriculum Materials for Trainable Mentally Retarded is an example of what a team of people can do when working together toward a common goal. The team of people fall into five different groups of experts: (1) experts in the content area being taught, (2) those who teach the target population and are thoroughly familiar with the characteristics of the learner, (3) those who are educational philosophers and theoreticians, (4) those who would classify themselves as curriculum design and evaluation specialists and (5) the trainable mentally retarded student population itself. We acknowledge with gratefulness the cooperation of those individuals and organizations that help make the project. Children and teachers from twenty-six centers in Michigan participated in one or more phases of the project. We wish to express our special thanks to the children and school personnel in these centers. We would like to thank the Special Education Personnel of the State of Michigan Department of Education for their cooperation, interest and courtesy extended at all times to the project staff members. A list of project staff, committees and participants is found in Appendix A.

FOREWORD

In picking up a two-part document for the Final Report such as this, you may no doubt be asking yourself, "Where do I begin reading?" The Project Staff writing this report make these suggestions. First, read Section I, Chapters I, II, III, IV and V. They will introduce you to the Project, the curriculum development model, the rationale, the specific features of the I CAN instructional system and the curriculum products of the Project.

Second, read Section II. The explicit elaborations and descriptions of the various elements of the evaluation are presented.

The intent of the Final Report is not only to describe the systematic procedures employed in developing and evaluating the curriculum materials but also to provide evidence of the effectiveness and validity of the I CAN instructional system for the mentally retarded. The Project Staff writing this report believes that this approach to writing the Final Report will meet the conditions of the BEH Contract and be of value for persons whose own work and/or interests relate to curriculum development and evaluation and dissemination of materials for the mentally retarded.

A Table of Contents, following, will guide you in locating specific information in both sections.

TABLE OF CONTENTS

SECTION I: CURRICULUM REPORT

Chapter Page

I. INTRODUCTION 1

Instructional Materials and the Handicapped 1
  Individualization of Instruction 2
  Learning Resource Center Programs 3
Instructional Materials for the Mentally Retarded . . . 5
  Mental Retardation 5
  Behavioral Characteristics and Materials Design for TMR 6
  Curriculum Project for the Mentally Retarded 9
Programmatic Research Project in Physical Education for the Mentally Retarded 11
  Background 11
  Goals and Target Groups 12
  Procedures 12
  Target End Product 14

II. THE CURRICULUM DEVELOPMENT PROCESS 15

Basic Assumptions: Getting the Project Under Way . . . 15
  General Assumptions 16
  Physical Education Contributions 17
  Programming and Instructional Materials 18
  Teaching-Learning Experiences 19
Procedural Model for Curriculum Development 20
  Goal Identification and Objective Specification . . . 20
  Description of Instructional Design Specifications . 24
  Development of Instructional Prototypes 26
  The Modification of Prototype Materials 29
  Recycling 31
Evaluation and Research in the I CAN Curriculum Development 31

III. IMPLEMENTATION MODEL: INSERVICE TRAINING COMPONENT . . 36

Introduction 36
  Need for Inservice Teacher Training 37
  I CAN Teacher Training Materials 37
Materials Design Specifications 37
  Identification of Teaching Competencies: Performance Objectives 37
  Learning Stages 38
  Materials Need Specifications 41
  Summary 41

Page

Direct Response Model 41
    Implementation Procedure 41
    Specific Steps Used in Implementation 42

IV. I CAN INDIVIDUALIZED INSTRUCTIONAL SYSTEM 45

Elements of Success for Individualized Instruction . . 45
    Goals and Objectives 45
    Materials and the Learner 45
    Content Analysis 46
    Methodology 46
    Evaluation 47
    Organization 47
Curriculum Materials/Instructional Procedures 47
    Diagnostic-Prescriptive Teaching 47
    Accountability 48
    Flexibility 49
    Replicability 49
    Adaptability 50
    Interrelationships 50
    Instructional Program Model 50

V. PROJECT END PRODUCTS 53

Curriculum End Products 53
    Materials Produced 53
    Materials Available 55
    Implementation Model 55
Field Research Service Unit in Physical Education and Recreation for the Handicapped 58
    Research Service Integration 58
    Effects of Research on Service 58
    Effects of Service Orientation on Research 61
    Services Offered 61

SECTION II: EVALUATION REPORT

Chapter Page

I. INTRODUCTION 63

Purpose of the Evaluation 63
Evaluative Approach 64

II. PROGRAM SPECIFICATION AND EVALUATIVE CONTEXT 66

Program Approach 66

Page

Program Characteristics 67
Content of the I CAN Curriculum 67
Structure of the I CAN Curriculum 67
Enabling Objectives 69
Relevance of Objectives 70
Implementation 70
Evaluative Context 72
Population 72
Training Field Test Teachers 74
Learners 74
Teachers 77
Background 77
General Expectations 79
Estimate of Teaching Ability 80
Implementation of I CAN 82

III. PROGRAM RESULTS 83

Evaluative Questions and Specific Outcomes 83
Question #1. Are the objectives of the program technically acceptance? 83
Expectations 86
Observations - Decision Criteria - Recommendations 87
Question #2. Are the objectives appropriate? . . . 87
Importance of the TPOs 87
Expectations 87
Observations 87
Decision Criteria 88
Recommendations 89
Clarity of the TPOs 89
Expectations 89
Observations 89
Decision Criteria 90
Recommendations 90
Congruence of the TPO with Ranges of Student Ability 91
Expectations 91
Observations 91
Decision Criteria 91
Recommendations 91
Question #3. Was the program implemented as indended? 92
Expectations 92
Observations 93
Decision Criteria 94
Recommendations 94

Page

Question #4. Are the I CAN materials feasible as a means of effecting desirable student change? 96
  Selection 96
  Design 96
  Criterion Measure 97
  Validity of the Instrument 98
  Reliability of the Instrument 99
  Unit of Analysis 101
  Treatment 101
  Results 101
    Expectations 102
    Observations 102
    Decision Criteria 104
    Recommendations 104
Question #5. What are the characteristics of the population which may be related to student success? 106
  Expectations 106
  Observations 108
  Decision Criteria 108
  Recommendations 108
Question #6. What are the teachers' reactions to the program? 108
  Helpfulness of the TLAs 109
    Expectations 109
    Observations 109
    Decision Criteria 109
    Recommendations 109
  Helpfulness of the Game Activities 110
    Expectations 110
    Decision Criteria 110
    Recommendations 110
  Indications of Need for Equipment or Media 110
    Expectations 110
    Observations 111
    Decision Criteria 111
    Recommendations 111
  Generic Reactions 111
    Expectations 111
    Observations 111
    Decision Criteria 112
    Recommendations 112
Question #7. What are the student reactions to the program? 112
  Expectations 113
  Observations 113
  Decision Criteria 114
  Recommendations 114

Page

Question #8. What are the unanticipated or indirect results of the field test? 114
Outcomes 115
Implications 116
Recommendations for Further Action 117

Bibliography 120

Appendix

A. LIST OF PARTICIPANTS 124

B. LIST OF WORKING PAPERS BY TITLE 128

C. SAMPLE 1973-74 FIELD TEST MATERIALS (RATIONALE AND OBJECTIVES 130

D. SAMPLE REVISED 1974-75 FIELD TEST MATERIALS 170

E. DISSEMINATION ACTIVITIES 202

F. WORKING PAPER 4 219

G. WORKING PAPER 5 223

H. I CAN FIELD TEST PARTICIPATION AGREEMENT 225

I. I CAN EVALUATION HANDBOOK FOR FIELD TEST TEACHERS . . . 227

J. CHARACTERISTICS OF THE FIELD TEST TEACHERS 274

K. DEVELOPMENT OF A "TEACHER QUALITY" RATING INSTRUMENT . 276

L. I CAN CONSULTANT MONITOR FORM 277

M. I CAN FORMATIVE EVALUATION DATA TABLES 284

N. DEVELOPMENT, IMPLEMENTATION, AND EVALUATION OF THE I CAN TEACHER'S GUIDE 318

O. THREATS TO INTERNAL AND EXTERNAL VALIDITY OF THE PRETEST-POSTTEST DESIGN 331

P. DESCRIPTION OF VARIABLES USED IN THE REGRESSION ANALYSIS ON STUDENT CHARACTERISTICS AND PERFORMANCE. 333

Q. REVISIONS RECOMMENDED BY FIELD TEST TEACHERS 335

LIST OF TABLES

Table Page

1. Characteristics of the Field Test Teachers 76
2. Characteristics of the Field Test Teachers 78
3. Consultant Ratings of Field Test Teacher Quality 81
4. Frequency of TPO Selection by the Field Test Teachers for the Module: Body Management 84
5. Frequency of TPO Selection by Field Test Teachers for the Module: Fundamental Skills 85
6. Teacher Judgments of TPO Importance for the Module: Body Management 284
7. Teacher Judgments of TPO Importance for the Module: Fundamental Skills 285
8. Teacher Judgments of TPO Clarity for the Module: Body Management 286
9. Teacher Judgments of TPO Clarity for the Module: Fundamental Skills 288
10. Teacher Judgments of TPO Congruence Within the Module: Body Management 290
11. Teacher Judgments of TPO Congruence Within the Module: Fundamental Motor Skills 293
12. Index of Field Test Teacher Implementation of I CAN . . 95
13. Indications of Student Improvements Not Reportable on the Student Performance Score Sheet 298
14. Criterion-Related Validity of the Criterion Measure . . 99
15. Inter-Rater Relability of the Criterion Measure 100
16. Changes in Student Performance on Selected Fundamental Motor Skills 103
17. Analysis of Variance of the Results of Teacher Type on the Performance of Eight Fundamental Motor Skills . . 105
18. Stepwise Regression Analysis on Student Characteristics and Performance 107
19. Teacher Judgments of the Helpfulness of the Teaching-Learning Activities for the Module: Body Management. 299
20. Teacher Judgments of the Helpfulness of the Teaching-Learning Activities for the Module: Fundamental Skills. 302
21. Teacher Judgments of Game Activity Helpfulness for the Module: Body Management 306
22. Teacher Judgments of Game Activity Helpfulness for the Module: Fundamental Skills 308
23. Indications of Need for Equipment or Media for the Module: Body Management 311
24. Indications of Need for Equipment or Media for the Module: Fundamental Skills 312
25. Attentiveness of TMI Students to the Teaching-Learning Activities of the Module: Body Management 313
26. Attentiveness of TMI Students to the Teaching-Learning Activities of the Module: Fundamental Skills 314

Table Page

27. Student Willingness to Participate in the Teaching-Learning Activities of the Module: Body Management 315
28. Student Willingness to Participate in the Teaching-Learning Activities of the Module: Fundamental Skills 316

LIST OF FIGURES

Figure Page

1. Levels of retardations with associated intelligance quotients 5
2. Guidelines for instructional materials and programs for the trainable mentally impaired: teaching/learning characteristics 7
3. Guidelines for instructional materials and programs for the trainable mentally impaired: curriculum, content and objectives 8
4. Federally funded curricular projects for mentally retarded 10
5. Procedural model with major steps for curriculum development 13
6. Brief schema of procedural model for I CAN curriculum development 21
7. Program goal areas and TMR learner needs in the I CAN physical education curriculum 23
8. The I CAN curriculum structure for organizing content and materials 25
9. Instructional conditions considered in formulating the I CAN instructional system 27
10. I CAN materials design by performance objective 28
11. Overview of the major questions of interest in the Phase II evaluation of I CAN 30
12. I CAN materials revision process 32
13. Educational research characteristics 33
14. Relationships between research and evaluation within the I CAN curriculum development context 35
15. Teacher behavior model 39
16. Competency stages for inservice training 40
17. I CAN instructional programming model 51
18. The scope of the I CAN primary skill resource modules . 54
19. A projected timetable for the development of I CAN . . . 56
20. I CAN project dissemination flow chart 59
21. Functions of a service-oriented programmatic research and development center 60
22. I CAN curriculum development model 64
23. Content of the I CAN primary skills modules (1973-74 field test) 68
24. Example terminal performance objective (TPO) and enabling objective (EO) (1973-74 field test edition). 69
25. Geographical area involved in the field test of I CAN . 73
26. Specification of I CAN performance objectives 86
27. Modification of I CAN instructional objectives 88

SECTION I

CURRICULUM REPORT

CHAPTER I

INTRODUCTION

Instructional Materials and the Handicapped

All children are entitled to an equal opportunity to learn. To help each handicapped child reach his full potential, instructional materials and procedures must be developed that are responsive to the individual's learning requirements. Furthermore, in order to truly meet the national commitment to equality of education opportunity and to accountability for student learning, these materials and procedures must comprise a total instructional system, e.g. an instructional system which offers the most appropriate, effective and practical instructional materials and experiences for each child (J. Armstrong 1975).*

It has long been realized that few instructional materials are so esoteric that only one group of learners with or without a specific handicap would find them of value. What is important is the fact that a child has particular needs in a prescribed curricular area; and, that these needs can be met through a proper matching of instructional materials and experiences to a set of learner characteristics arising from the individual's needs. The necessary development and modification of existing instructional materials and media is the foremost goal of the special educator.

During the past few years there have been changes in two directions which should optimize the educational environment of handicapped children. First, special educators and educators in general are making more provisions than ever before in individualization of programming to meet the unique needs of each child. No one can conscientiously argue against the right of every child to grow to maximum potential. To be able to provide an instructional program geared to the uniqueness of each child is an admirable but difficult task. The difficulty is not in knowing what ought to be done but rather how best to do it. One of the first things to realize is that individualized instruction is not necessarily different for each child but must be appropriate to each, e.g. the degree of correspondence between the requirements and capabilities, and goals and objectives establish the relative level of appropriateness. Second, the blueprint for the future is the establishment of a systems approach to meet the instructional materials needs of the handicapped with an increased emphasis on evaluation and dissemination of validated instructional materials. The Learning Resource Center System (LRC) which was funded by the Bureau of Education for the Handicapped and operationalized in the Fall of 1974 provides such a program.

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*Appropriateness refers to the degree of correspondence between materials,requirements and capabilities of the learner and to the degree of correspondence between the objectives of the instructional system and the goals of the curriculum.

Effectiveness refers to the instructional systems demonstrated capability in effecting specifiable behavior changes when used in a prescribed manner with a particular group of learners.

Practicality refers to the costs involved in its implementation in the school and the physical characteristics of materials e.g. durability, storage features, transportability, etc.

Individualization of Instruction

The two key words that invariably stand out in any discussion for improving educational programs for the handicapped are individualized and systematic. Individualization of instruction is the solution proposed by many educators for children who have problems in learning. Individualization as it relates to special education means personalization of instruction. This involves the systematic interweaving of all learning and teaching processes in terms of specific objectives with all the elements of the instructional setting: the student, the teacher and the media. Rather than looking for the best medium for teaching a child, individualized instruction requires the teacher to think about learning in relation to objectives of instruction and the means by which the learner becomes involved in the media. Individualized instruction is not necessarily different for each handicapped child but must be appropriate to each learner. Individualized instruction is prescriptive in that the student enters the instructional sequence at a level where success is insured and is allowed to achieve as far and as fast as his ability will permit.

Prescriptive instruction provides a personalized learning path for each student. It is an attempt to identify the most effective instructional strategies for children who differ on any number of variables related to learning. Three assumptions underlying prescriptive instruction are diagnosis, prescription and continuous progress learning.

1. Diagnosis
   Children enter a teaching situation with strengths and weaknesses. These strengths and weaknesses can be reliably and validly assessed. Evaluation of strengths and weaknesses is focused on skill development, skill assessment, and prescription of instruction based upon a child's standing in the hierarchical sequence of skill development. For the most part, individualized criterion referenced testing provides the means for planning a program of individualized instruction appropriate to the needs of the learner.

2. Prescription
   With the assessment of skill development, instruction can be tailored to move the child from where he is to where he needs to be. The teacher implements test

results by prescribing instruction and materials appropriate for objectives in the areas the student needs.

3. Continuous Progress Learning
An individualized program requires the formulation of curriculum objectives for continuous progress learning. With these objectives a teacher can assess individual needs and prescribe appropriate instruction to allow students to enter at their own level and make progress at their own rate. To be effective for different children having various needs, actual instruction must employ a diversity of materials and techniques. In addition, instruction must be followed by evaluation administered to determine how well each student has met the objective and whether recycling is in order. Materials designed for individualized continuous progress programming provide teachers with the needed management system to organize instruction for the wide variance found in handicapped students.

Prescriptive instruction requires adequate pre-service and inservice training programs to assist teachers develop the highly specialized competencies, management designs and materials required for successful individualized instruction. Prescriptive instruction makes it possible for a teacher with many or few students to reach every child. It allows each child to make continuous progress in learning those concepts, skills and values viewed to be crucial for realizing the potential that education can offer.

Learning Resource Center Programs

In the last decade, foremost among the unmet needs of handicapped children was the relative dearth of instructional materials. The first step toward a definitive instructional materials and media needs of the handicapped on a national scale was the establishment of the Instructional Materials Center Network through funding by the Bureau of Education for the Handicapped, United States Office of Education. The materials development proceeded on the basis of a rather shaky assessment of what the needs really were. A deluge of instructional materials and programs were produced with little or no verification of the materials usability or uniqueness for meeting the needs of the target population of handicapped children. In 1973, a survey completed by the network, showed that there were 2,019,560 pieces of materials held. While some materials developed may be excellent, they may never reach a wide range of potential users or they may meet only the needs in specific locales. The need for a comprehensive plan for materials development and a systematic approach for evaluation and dissemination of validated materials is apparent to insure equal educational opportunity for the handicapped.

The stimulation provided by the federal government is a major factor in advancing instructional materials and technology in special education for the handicapped. Edwin Martin, Associate Commissioner, Bureau of Education, U.S. Office of Education, calls such stimulation a major goal of the Bureau. By 1976, he states, the Bureau wants to provide "...systems and resources so that significant relevant educational materials and procedures are readily available to teachers of the handicapped and so that the objective of providing services to 60% of handicapped children may be reachable." The Learning Resource Center (LRC) Program is a response to the instructional materials needs of the handicapped child. The LRC was funded by the Bureau of Education for the Handicapped and was operationalized in the Fall of 1974.

The LRC Program is a systems approach to the provision of instructional materials for handicapped children. The LRC Program is organized and structured so that duplication of effort is minimized through the development of the concept of specialized function and role. The coordinating agent, as well as the information hub, is the National Center for Educational Media and Materials for the Handicapped (NCEMMH). In addition, NCEMMH will be made available by the federal government to guide materials development and selection not only for federal funding but also for independent and commercial producers.

With the increasing emphasis on validation of materials and instructional procedures for specific target populations of handicapped children, major gains are anticipated in establishment of evaluative criteria for the selection and/or development of validated instructional materials for dissemination. Making decisions about instructional materials relative to the needs of the handicapped to be served require the establishment of criteria (i.e., standards) for making judgements and/or the disposition of particular available instructional materials (i.e., review and describe for entry into NCEMMH's National Instructional Materials Information System). Within the evaluative function, decisions about instructional materials need to be made relative to: (1) appropriateness, (2) effectiveness, and (3) practicality (Armstrong, 1973).

1. Appropriateness
   Curricular goals, objectives and instructional design complement the target population learning needs based upon logical analysis of instructional materials development and expert judgement as to quality and content.

2. Effectiveness
   The usability of the materials is determined on basis of field test reports. Effectiveness is based on evaluative data focused on teacher judgement and learner data derived from field testing.

3. Practicality
   The considerations related to judgement of practicality of a particular material for use with various handicapped children involve such physical characteristics as durability, storage, costs, etc.

Instructional Materials for the Mentally Retarded

Mental Retardation

The most recent definition by the American Association on Mental Deficiency (Grossman, 1973) states:

> "Mental Retardation refers to significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior, and manifested during the developmental period."

The terms MILD, MODERATE, SEVERE and PROFOUND are recommended for describing levels of retardation. Intellectual functioning is assessed by one or more standardized tests.

Educational Terms	Levels	Obtained Intelligence Stanford-Binet Cattel	Quotient Wechsler Scales
Educable	Mild	52-68	55-69
Trainable	Moderate	36-51	40-54
Dependent	Severe	20-35	25-59 (extrapolated)
Life Support	Profound	19 and below	24 and below (extrapolated)

Figure 1. Levels of retardation with associated intelligence quotients

The effectiveness or degree with which the individual meets the standards of personal independence and social responsibility expected of his age and cultural group is the definition of adaptive behavior.

The definition of mental retardation includes a population of great variability, with a wide range of capability. Curricula and material needs for these individuals should be examined for various subgroups at various developmental levels. By describing the specific characteristics of subgroups, clearer indication of types of materials can be obtained. Commonalities in materials design and programming that exist across all subgroups as well as the uniqueness for some may be identified. The variability and heterogeneity that exist among mentally retarded clearly indicates the need for individualization of programming. The student must be allowed to enter the instructional sequence at a level where success is insured and be allowed to achieve as far and as fast as his ability will permit. The goals and objectives of the curriculum for the mentally retarded population should be founded on the philosophy that every child has a basic right to receive the best education possible to maximize his or her potential.

Behavioral Characteristics and Materials Design for TMR

The TMR child develops intellectually at approximately 1/3 to 3/5 the rate of the average child. At six years of age the TMR child is mentally like children of between two and four years. In adulthood, intellectual development approaches five to nine years, with implications that as a group, TMR achieve academically at about the third grade level (Dunn, 1973).

Behavioral characteristics of the TMR can provide guidelines for materials needs and programming. The instructional materials for the TMR need: (1) to contain those educational goals and objectives which must be met in order for each child to reach his potential cognitively, emotionally, socially, and vocationally, and (2) to involve a teaching model which will allow the TMR to attain those educational goals and objectives. Of importance here is the description of the characterization of learners in terms of educationally relevant parameters (Figures 2 and 3).

The Programmatic Research Project Center Staff conducted a comprehensive review of literature (presented in Project Working Papers) along with a survey. The survey involved a questionnaire on which professionals in the area, advisory committee members, and the Project Staff rated the curriculum content most essential to meet the needs of the TMR in physical education. Other reviews focusing on behavioral characteristics and matching instructional materials possibilities have been recently reported for the Trainable Mentally Retarded (Reiss, 1974; Gollop and Armstrong, 1975). General guidelines of relevant educational parameters for learning and programming content were developed by the Programmatic Research Project Staff. These guidelines are presented in outline form in Figures 2 and 3. All of these characteristics have vital educational relevance for not only the TMR, but for all children classified as retarded.

In general, the curricular content areas of competence identified for the TMR have been limited to teaching "useful things". Most often the curriculum model and content reflect inabilities rather than potentiation of abilities and programming for maximizing the education of the TMR. The learning characteristics identified are those that impede learning and performance. These characteristics can be ameliorated or prevented through a systematic instructional program designed to maximize the learning environment. The educational goals and objectives proposed for the TMR need to be broadened

Behavioral Characteristic Clusters (General learning)	Material Characteristics
1. Uneven skill development across behavioral areas (psychomotor, cognitive & affective) with marked variability in learning. (Johnson & Blake, 1960)	1. Instructional materials and program should have the following characteristics: - individualized instruction by prescription of content for continuous progress learning based on individual needs - organized content systematically and sequentially for the acquisition of specific skills, knowledges and attitudes needed for specific goals by development levels - criterion reference measures individualized for assessing educational strengths and weaknesses that are task specific.
2. Difficulty in generalizing from specific instances (this includes problems in discrimination, transfer, conceptualization, and problem solving). (Barnett & Cantor, 1957; Cantor & Hottel, 1955; Zeaman & House, 1962; Clarke & Blakemore, 1962; Hirsch & Lowman, 1965)	2. Effective learning is facilitated when new skills, knowledges or values are developed through a gradual and systematic progression from simple to complex. This may be accomplished by: - using concrete materials and related experiences, involving doing, to foster development of desired skills, concepts, and attitudes - spiraling the curriculum by presenting skills, concepts, and attitudes in recurring developmental fashion and reinforcing by repeating concepts, skills, or values in varied meaningful contexts, i.e., need to use the skill and information.
3. Poor short-term retention which may be improved by practice and over-learning. (Cantor & Ryan, 1962; Chesey & Knowles, 1973)	3. Effective learning is facilitated by repetition and practice. This may be best accomplished by: - reducing the time between the presentation of the task and the student's performance - focusing on single elements of the task - sequencing objectives so that skills build on one another, thereby requiring repetition.
4. Interference of tasks learned prior to or after a new task is common. (Kolstoe, 1970)	4. Effective learning is facilitated by careful planning to avoid situations in which interference can occur. This may best be accomplished by: - presenting new materials at the the first or last part of the lesson - incorporating dissimilar objectives into the same lesson.
5. An inability to attend resulting from behavior disorders, short attention span and a low level of aspiration. (Denny, 1966; Zeaman & House, 1962)	5. Effective learning is facilitated by specification of reinforcement strategies. These principles of reinforcement should be considered: - more "praise" should be used than "punishment" - reinforcement should be immediate.
6. Failure proneness is evidenced as a result of poor self concept, insecurity, hostility, and negative attributes. Typically, a lack of motivation and negative attitudes toward learning.	6. Effective learning is facilitated by materials designed so that continuous success is attained in the following way: - tasks should be relevant and achievable - immediate and constant feedback should be provided - reinforcement should be appropriate.
7. Weakness in verbal communication with delayed language development and difficulty in sequencing. (Blount, 1966; Evens & Apfel, 1968; O'Connor & Hermelin, 1963)	7. Effective learning is facilitated when program and materials include a combination of teaching techniques for input and output. Input - physical assistance - modeling - verbal commands - inquiry and problem solving Output - learning words and rules - sequencing and ordering word events - sentencing

Figure 2. Guidelines for instructional materials and programs for the trainable mentally impaired: teaching/learning characteristics

Behavioral Characteristic Clusters	Material Characteristics
1. Motor development is delayed with uneven skill development. (Seefeldt; Hayden, 1966; Lillie, 1967)	1. Program requires developmental sequences relevant to instructional goals, objectives, program activities: - curriculum model and teaching model matched for systemic organized behavioral expectancies - Individualized prescription for entry level requirements in terms of skills and relevance of language, socio-cultural, and perceptual motor - motor skills essential for goals and objectives common to establish goals of education for all learners and in particular for TMR relevance to learning acquiring socio-leisure competence health/fitness, and associated and relatedness to home-school-community.
2. Physical fitness is typically low due to lack of regular daily activity. Tendency to be overweight is common. (Hayden, 1966; Lillie, 1967)	2. Program content relevance for: - acquiring and maintaining optimal level of physical fitness - daily activity in school and relevance for home and community activities - concepts of activity and weight needs.
3. Need to be taught to play purposefully and to participate with others. Typical lack of participation in social groups. (Lillie, 1967)	3. Affective Skill learning essential for programming in physical education instructional systems: - activities that require consideration of others, sharing helping, concern. etc. - activities that require play-social groups, self and partner, self and team, etc. - activities common to culture and specific region of community, home, etc.
4. Need to be taught skills and concepts in school learnings reinforcing concrete experiences. (Hardman & Drew, 1975)	4. Associated skill learnings essential for programming in physical education instructional systems: - skills and concepts generic to all school learning subject matter areas (i.e., space, colors, number). - skills and concepts in communication and language interrelated with the teaching learning activities for sequential programming.

Figure 3. Guidelines for instructional materials and programs for the trainable mentally impaired: curriculum, content and objectives

The traditional goals and objectives focus on five discrete areas (Dunn, 1973).

1. Self-Help or Care Skills: grooming, personal hygiene, safety, eating, and other skills learning to development of independent daily living functions
2. Communication and Language Skills: expressive language skills, listening and receptive language skills
3. Occupational Skills for economic usefulness: prevocational and simple vocational skills
4. Social Skills: meeting people, behavioral in specific community situations, playing with others, field trips
5. Motor Skills: fine, gross, sensory, including perceptual areas of development

The typical curriculum model in physical education found in the review was a fragmented, departmentalized presentation of separate skills. In many instances programming revolved around perceptual motor and health/fitness activities. Even with these programs, no replicable model is available (Wessel, Vogel, Knowles, 1975). What was needed was a programmatic research effort focused on developing and validating an instructional system in physical education and recreation for the TMR. A curriculum model matched to a teaching model which can be systematically and sequentially programmed to provide individualized teaching and learning of those skills, knowledges and values is needed to maximize the TMR education for health/fitness and social leisure competence.

Curriculum Project for the Mentally Retarded

In the past, special education teachers have faced a common dilemma---a real shortage of instructional materials for the mentally retarded. Several reasons have been postulated for this condition: (1) teachers are accustomed to developing their own materials and programs; (2) the market is so thin and small that few publishers dared invest in it; (3) no institutions or agencies are specially charged to develop, evaluate and disseminate materials for the mentally retarded; and (4) researchers are more interested in basic or applied research than field research and evaluation. Presently, teachers, teacher trainers and administrators are faced with another common problem. They are being deluged with new materials, instructional models and system. All of these media require teachers and administrators to make countless decisions and choices: What is appropriate? What is effective? What is the cost? Decision making models for selecting instructional materials most appropriate, most effective and most practical need to be implemented to handle the problem systematically and logically.

A serious effort has been launched by the Bureau of Education for the Handicapped, United States Office of Education to focus national attention and resources for development and selection of validated materials for the mentally retarded. First, through the establishment of the Learning Resource Center network program described previously; and second, through the funding of several national curriculum projects. These projects include the following:

A Mathematics Program for the Educable Mentally Retarded under the direction of Jack Cawley at the University of Connecticut.

The Social Learning Curriculum Project for the Educable Mentally Retarded under the direction of Herbert Goldstein at the Curriculum Research and Development Center in Mental Retardation at Yeshiva University.

The Science Program (Me Now and Me and My Environment) being developed for the Educable Mentally Retarded by the Biological Sciences Curriculum Study (BSCS) at Boulder, Colorado.

The Programmatic Research Project (I CAN) in Physical Education and Recreation for Trainable Mentally Retarded under the direction of Janet A. Wessel at Michigan State University.

The Primary Curriculum (Pacemakers) using mediational and social learning theory being developed by Dorothea Ross and Sheila Ross for Educable Mentally Retarded.

The Project More Daily Living and Critical Skills Curriculum for Severely Mentally Retarded under the direction of James Lent, University of Kansas, Bureau of Child Research, Parsons State Hospital and Training Center, Parsons, Kansas.

Figure 4. Federally funded curricular projects for mentally retarded

Although the subject matter areas differ, the curriculum projects share five basic assumptions:

1. Existing curricula and instructional materials in the schools did not satisfactorily meet the needs of the mentally retarded population. Furthermore, to truly meet the needs of these learners the materials must comprise a total curriculum model and instructional system which can be operationalized by the teacher with the

children in the classroom, i.e., a school learning model that permits student to enter at his own level and progress at his own pace. Without such a comprehensive plan, the curriculum and materials development will continually be produced on an unsystematic basis.

2. The curriculum development process involves a mission-oriented management strategy in which goals and objectives common to education of all children are included. These are specifically stated relative to the target population and the particular instructional area of learning.

3. Developing a curriculum requires the combined efforts of curriculum designers, content experts, consumers (teachers and students), managers and evaluators integrated through the establishment of a procedural model.

4. Development, implementation, revision, and dissemination of materials require using research and evaluation studies in order to provide real help to the classroom teachers and school personnel in narrowing the gap between translation of research into practice.

5. A dissemination plan must be implemented throughout the curriculum project for the wide-scale distribution of validated materials and instructional systems, i.e., appropriate, effective and practical materials for the target population.

For those interested in more detailed information regarding these federally funded projects, a recent publication is available. The monograph was funded by the Bureau of Education for the Handicapped: Planning Curriculum Development, edited by William V. Mayer, BSCS, P. O. Box 930, Boulder, Colorado.

Programmatic Research Project in Physical Education for the Mentally Retarded

Background

The Department of Health, Physical Education and Recreation has long been concerned with school programs for handicapped and non-handicapped children. In 1964-65, work began on community school program for physically and other health impaired youngsters in Flint, Michigan. This project culminated into an ongoing physical education program in special education. In 1966-70, the Department became involved in a cooperative effort between the Battle Creek Public Schools and

Michigan State University (Title III) to design an exemplary program model in physical education for all children. More recently, the staff has been involved in contract work for constructing sequential performance objectives K-12 in psychomotor domain; implementing prescriptive programs for children with visual impairment, for children with specific learning disabilities; and for children in regular classes. Concern for the trainable and severely mentally retarded and the lack of replicable instructional programs and curriculum materials, led the Department to submit a curriculum research and demonstration project to undertake this task. The Programmatic Research and Demonstration Project in Physical Education for Mentally Retarded Children and Youth was funded under a grant (1971-74) awarded to Michigan State University by the Bureau of Education for the Handicapped in the United States Office of Education.

Goals and Target Groups

The goal was to develop, validate, produce and disseminate an instructional system for individualized physical education. The target group is the trainable mentally retarded, in elementary school. The major curricular areas of focus are those psychomotor, cognitive and affective skills in physical education deemed most critical for the trainable mentally retarded ages five through fourteen years for:

(1) maximizing healthy growth and development
(2) participating in play and leisure activities in home, school, community programs and special events
(3) associating school subject matter as in learning to move and moving to learn.

Procedures

Many activities are required to carry out the curriculum development process. The monumental task of conceiving, developing, field testing, revising and preparing for final publication is an example of what a team of people can do when working together toward a common goal. Few curricula can be made operational without a procedural model for systematic development, implementation, evaluation, and dissemination. This model is presented in Figure 5.

The project was initiated in June, 1971. The first funding period was devoted to developing and implementing a procedural model for curriculum development, designing the prototype curriculum materials and pilot testing selected components of the prototype materials. The second funding period involved the implementation of inservice training procedures, and field testing. The third year funding period focused on the collection of field test data, analysis revision of prototype materials, and the preparation of materials for dissemination. The materials were field tested under a USOE/NIE copyright program, and will be produced and disseminated under a USOE copyright program for wide scale school use.

	Major Steps	Description
	Planning and Design	
Year One 1971-72	1. Knowledge Base	Position Papers on State of the Art: specification of procedural model for curriculum development of target population characteristics, needs and curriculum goals; Instructional program and teaching model; Associated Learnings in other school subject areas, etc.
	2. Instructional System	Identifying and organizing content areas; specifying and sequencing learning tasks; constructing criterion reference measures; developing teaching-learning activities; identifying needed teaching skills, etc.
	Developing & Implementing	
Year Two 1972-73	3. Prototype Materials	Materials designed (modules and teaching manual); evaluation tools and procedures constructed; active response inservice training model for implementation; staff work with teacher in the class with students.
	Field Test - Phase I	Pilot-testing conducted by project staff in 6 to 10 classes and 2 to 3 teachers.
	Product Preparation	Materials and program revised and recycled. Product prepared for Field Test II.
	Evaluation & Revision	
Year Three 1973-74	4. Field Test - Phase II	Field testing conducted in 20 to 25 school field sites using between 30 to 35 teachers. The teachers include classroom teachers, physical education specialists, and combinations of the two. One thousand students involved in field test.
	5. Product Revision Recycle	Revision of products as suggested by main field test results. Evaluative criteria include material analysis; expert judgment of accuracy of content; teacher judgment of effectiveness derived from field testing; student effectiveness derived from field testing.
	Dissemination & Long-Term Plans	
Year Four 1974-75	6. Dissemination and Distribution of Products	Reports at professional meetings, in journals, etc. Work with publisher who assumes production and marketing.
	7. Long-Range Plans to Improve Products	Includes Field Service Support Unit in Physical Education and Recreation for the Handicapped. Royalties diverted to Service Unit to facilitate research, curriculum development and evaluation; link to NCEMMH and BEH activities; adapt for other target populations; provide for supportive field services for institutionalizing change, inservice and preservice programs.

Figure 5. Procedural model with major steps for curriculum development

Target End Product

The target end product is to produce an instructional system with specialized instructional resource materials in physical education--an individualized program based on assessed learner's need. This instructional system should "put it all together" for successful individualized instruction in physical education.

The instructional materials with teacher's manual is called I CAN. I CAN is an instructional system which matches the curriculum model with teacher behavior model to:

I individualize instruction
C reate social leisure competence
A ssociate all learnings
N arrow the gap between theory and practice

The I CAN instructional system was designed and packaged to be usable by the classroom teacher, the physical education teacher, the recreation leader, the curriculum consultant or a combination.

CHAPTER II

THE CURRICULUM DEVELOPMENT PROCESS

The curricular decisions that need to be made in developing a curriculum for handicapped children are the same as those for developing a curriculum for non-handicapped children. The curriculum developer's skills are generic and not specific to special education. WHAT MAKES SPECIAL EDUCATION CURRICULUM DEVELOPMENT SPECIAL? It demands the recognition of the individual differences and the right of every child to grow to maximum potential. The "special" in special education assures that the major focus is the individual learner and the individualization of instruction to meet each learner's needs. What must be realized is that while individualized instruction must be appropriate to each learner, it is not necessarily different for each student.

WHAT IS "SPECIAL" IN SPECIAL PHYSICAL EDUCATION CURRICULUM DEVELOPMENT? It demands recognition not only of individual differences but also the personalization of instruction for each learner, i.e. the instruction of each child in those psychomotor, cognitive and affective skills deemed most important to maximize his potential. The curriculum developer engaged in instructional design in special education is concerned with making educational adaptions for individual differences of a target population group of children based on behavioral characteristics. The nature and structure of the learning programs vary with the nature and severity of the children's learning needs. A wide array of instructional strategies is required. The management design is the key since all of these considerations complicate instruction and load the curriculum developer with special conditions with which to contend.

Basic Assumptions: Getting the Project Under Way

The project, funded in 1971-72 by the Bureau of the Handicapped, had the specific goal of producing and disseminating an appropriate and effective set of instructional materials in physical education, relevant to current and future populations of mentally retarded persons. The initial curricular development activities are directed toward the primary program level, 5-14 years of age. The project began with many different problems due to limited knowledge of the literature and unsolved problems facing all curriculum developers in special education. Among these problems are:

- the variability of the population described as trainable mentally retarded (TMR)
- the limitations of instruments used to assign pupils to TMR classes
- the problem of low teacher expectations along with low pupil self image/self esteem

-the lack of existing guidelines for, or exemplars of appropriate and effective materials in physical education for this population or any other subject matter

-the lack of curricular framework in physical education for programming, namely sequence and specified conditions for effective selected learning.

The project staff proposed to establish and to work within a reasonable framework of assumptions regarding what is possible for retarded children. These assumptions were "open ended" so that they could be modified as new experiences and research data became available. Our goal is not to produce perfect materials or design a curriculum that is free from criticism. Our goal is to establish instructional systems, for individualized programming through prescriptive teaching, that will contribute substantially to the "state of the art" and that can be continually modified and improved with time and use.

The basic assumptions considered acceptable to the staff, consultants, and teachers, who have been instrumental in getting the project underway, are presented under four topics: general assumptions; contributions to be made in physical education; programming and instructional materials design; teaching-learning experiences.

General Assumptions

1. All children are entitled to equal opportunities for self-development to the fullest extent of their individual physical, mental, and emotional capacities.

2. Children with mental handicaps, who do not have the same ability to adjust and to learn as so-called "normal" children, should be provided with instructional programs specifically designed for their needs and abilities.

3. Meeting those needs--and determining those abilities--requires the provision of learning experiences that make it possible for handicapped children to achieve both mastery of useful skills and concepts and personal satisfactions in the learning experiences.

4. The contributions and accomplishments of children with mental handicaps are functions of what we--as teachers or curriculum designers--are able to provide as interventions, improvements and extensions of their usual experiences.

5. The common goals of education are as relevant to these children as they are for every child.

6. The curriculum in physical education is most directly concerned with developing the motoric or psychomotor characteristics. These characteristics cannot be structured into an instructional program model isolated from the other two domains of human life. Nor can such a program be effective with no consideration of other school subjects.

7. The aim of the program should be to develop socio-leisure competence which is commensurate with the independent-dependent potential of the learner during maturation and at maturity. The philosophical orientation for the development of the curriculum goal must be based on research and observation regarding the contribution of physical activity to human growth and development; and the relevance of educational parameters and conditions for learning to populations of youngsters.

Physical Education Contributions

1. The mentally retarded child can develop health/fitness, playing skills and positive self concept.

2. The mentally retarded child can be provided with challenging cooperative-competitive activities with self and others at levels commensurate with his ability to respond effectively.

3. The child can be aided in establishing acceptable competence in socio-leisure modes of living and a sense of responsibility to and for his environment.

4. Emphasis can be placed on the development of skills, values, and health-fitness in the child of a higher level of social maturity that can lead to increased vocational proficiency, realistic and more effective assimilation into the community.

5. The child can develop a knowledge of self-moving and moving with others in relation to his environment along with ability to apply this knowledge to the tasks of everyday living such as play and work skills.

6. Increased knowledge about learning characteristics, namely effective strategies for instruction, will be a contribution.

Programming and Instructional Materials

1. The motor development and performance of mentally handicapped children is similar but slower than typical children, e.g. development of motor skills as well as personal-social skills follow similar developmental patterns for all children.

2. The variability of the mentally retarded population will require perceptiveness for identifying developmental sequences, namely to see the child in terms of a maturing, developing, changing person rather than to adhere to chronological and mental age norms:

    a. A label will tell us little about needs, interests and abilities of the target population
    b. An individualized instructional program model which incorporates a diagnostic/prescriptive teaching behavior model is required.

3. Any of the deficient behavioral characteristics identified may be due to:

    a. lack of exposure to model kinds of learning and experiences (most curricula are watered down versions of elementary school curricula).

    b. exposure to learnings and experiences that are inappropriate to the learner or appropriate but distorted by the learner.

4. The unique focus of a program for retarded children is the systematic presentation of increasingly more complex concepts, skills and personal-social behaviors. Furthermore, thinking, communication and other relevant school learnings must be built into the program.

5. To achieve the objectives, materials should provide a balance between detail and motivation; that is, the amount of detail that can be learned is probably a function of the interest and motivation that can be established to deal with it.

6. The classroom environment and the materials should be uncluttered with distractors; however, a variety of perceptual modes and instructional media should be used in all efforts at communication (e.g. sight, touch, smell, etc.).

7. Most teachers will need preservice and inservice training to implement the instructional program model.

Teaching-Learning Experiences

1. The mentally retarded child needs and can respond effectively to an activity centered instructional approach to physical education.

2. An activity must involve the student in various ways of applying the desired behavior. Transfer cannot be assumed.

3. Activities should be developed in small discrete units that build on or reinforce a concept or skill or value.

4. Entry points should be concerned with concrete, tangible "things" rather than with abstract, intangible ideas or concepts.

5. Ideas and skills must be developed without the necessity for reading or verbal acceptance on the part of the student. The materials must provide a continuum from non-verbal to verbal learning.

6. Vocabulary, should involve functional language relevant to all subject material areas.

7. Learning, for the mentally retarded requires slower pacing, greater redundancy, and time for practice and play.

8. Efforts to describe the "average" child are essentially futile because of variability within the population, therefore materials and methods should allow for attention to individual differences and needs. This may be accomplished with individualized programming and prescriptive instruction based on criterion reference testing and evaluation.

9. Content must be sequentially appropriate for individuals with chronological ages from 5-14 and mental ages from 3-9 years.

10. The instructional program must be replicable, transportable and flexible. This is necessary for individualized instruction in a variety of situations, for adaption to existing programs and for usability with a heterogenous target population based on assessed need.

Procedural Model for Curriculum Development

A systematic approach is a requirement for the curriculum project. In essence, the establishment of a procedural model provides the management system needed for a curriculum project because it helps to crystalize the definition of goals and objectives, identify the elements involved in achieving them, coordinate important information germane to each stage or step in the curriculum development and give management a reliable base for directing action and resources properly.

The procedural model employed by the Programmatic Research Project Center is an adaptation of several established management systems. Segments of the Planning, Programming, and Budgeting System (PPBS) Project Evaluation and Review Technique (PERT) have supplied elements which aided in laying out the project visually to show the important activities, the planned starting and finishing dates, the program personnel assignments in specific areas, the coordination of personnel and activities and the assigning of priorities to various program activities. The use of forms, charts and procedures which enabled all personnel to visualize the total program along with periodic meetings and memos also aided in keeping personnel informed and up to date.

A brief schema of the procedural model for the development of the I CAN Curriculum Resource Materials and Instructional System is presented in Figure 6. This systematic approach to decision making and problem solving in curriculum development has provided a basis for constant evaluation of goals and objectives and has helped identify changes necessary to strengthen the management system. The procedural model established a top-down management approach to curriculum development in which a sequencial set of activities from the origin of goals and objectives through instructional design process to the target end-product is employed. The identification and development of Working Papers by the project staff was a management strategy for translation of research into practice. A listing of Working Papers by title may be found in Appendix B. On the following pages, each step in the procedural model for curriculum development is described in detail.

Goal Identification and Objective Specification

Goal identification and objective specification is a social process conditioned by political and economic constraints which define the purpose for which the instructional program is being developed (Hamreus, 1969). Goals and objectives identify what is to be taught and reflect both the learner needs and the values of society. Procedural considerations used to insure relevancy of purpose included literature reviews, descriptive research, task descriptions and task analyses. The curriculum goals provide the criteria for selection of content. The objectives serve to identify what skills, concepts, and values are essential for the learner to achieve the

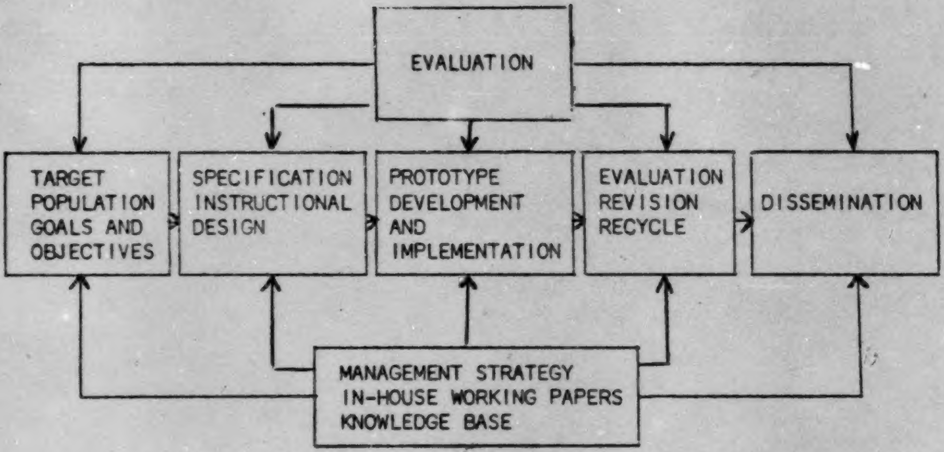

EVALUATION
TARGET POPULATION GOALS AND OBJECTIVES
SPECIFICATION INSTRUCTIONAL DESIGN
PROTOTYPE DEVELOPMENT AND IMPLEMENTATION
EVALUATION REVISION RECYCLE
DISSEMINATION
MANAGEMENT STRATEGY
IN-HOUSE WORKING PAPERS
KNOWLEDGE BASE

Figure 6. Brief schema of procedural model for I CAN curriculum development

desired goals or outcomes. Figure 7 presents the program goal areas and the TMR learner needs in the I CAN physical education curriculum. An overview of the goals with general statements illustrating relevance to learner's needs are presented herewith:

Psychomotor Skills (to demonstrate proficiency in a broad base of functional motor skills and selected play-leisure activities)

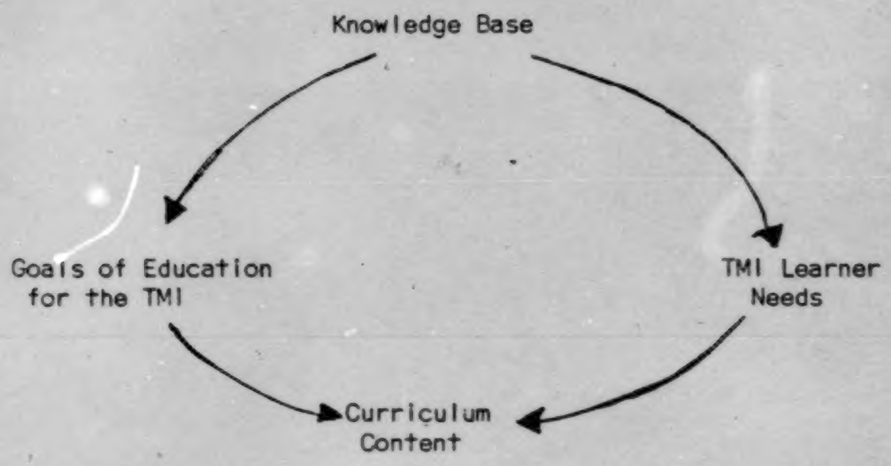
Children with special learning needs may lack functional motor skills in one or more areas of locomotion, projection and reception of objects. In addition, most of these children have poorly developed body management skills (generalized mobility, stability, agility, body image and control of body actions in daily living). Furthermore, these youngsters frequently lack the participation in vigorous activity that is necessary for developing strength, stamina, muscle tone and good posture. A child with poor motor and body management skills is likely to have problems in other classroom learning areas such as self-help, working and playing with others who are more skillful motorically, and self-confidence or developing a positive self concept.

Affective Skills (to develop a positive self image and responsible behaviors of sportsmanship as a participant and spectator in the world of play and leisure)

Trainable mentally impaired children frequently develop a failure syndrome, along with a weak self-concept. The development of a positive self image in an active, success-oriented program can foster healthy growth and development (physical, mental, emotional, and social). Matching the instructional tasks with the cognitive, social and motoric development of the child can provide each child with successful completion of the task as he forges ahead in the areas deemed essential. Learning skills in controlling the body, developing stability, discovering himself, relating and interacting to others, and learning about the physical world and his body actions, are important ingredients in child development. Social skills are most frequently poorly developed in these mentally retarded youngsters. Studies have shown that failure "on-the-job" more often results from inadequate social skills than from lack of competency to perform a specific task. Frequent inhibitors of the development of appropriate social skills include poor language development, poor social interaction models, lack of motor skills to interact in play with others, etc.

Cognitive Skills (to regulate physical activity in one's life for healthful living and improve physical performance)

If the child is retarded in cognitive development, he is usually retarded in other facets of development: social,


Knowledge Base
Goals of Education for the TMI
TMI Learner Needs
Curriculum Content

Program Goal Areas to Meet His Needs

Psychomotor --	Motor & Leisure Skill Activities
Affective --	Gaining Self Concept & Sportsmanship
Cognitive --	Learning About Self/Others in World of Leisure & Work

Figure 7. Program goal areas and TMR learner needs in the I CAN physical education curriculum

language, self-help, and motoric skills. A functional vocabulary of motor concepts correlated with other cognitive skills through regular and vigorous activity in his daily life. Educational programming was developed by interrelating all school learnings. Cognitive skills development must be provided in each school learning comparable to the learning tasks required for each child.

Description of Instructional Design Specifications

Description of instructional design specifications is a task of the educational engineer (Twelker, 1969). He must look at the goal (s) of the program, extract the related hypotheses, theory and laws from the knowledge base and propose a blueprint which guides the development of the instructional prototype.

Twelker divides instructional specification into two major divisions: (1) specifying the instructional sequence and (2) specifying the instructional conditions. Briggs (1969) suggests that the way competencies are sequenced is a more powerful influence in determining performance levels than how the competencies are taught. Further, support for the hypothesis that mastery of lower order objectives positively influences learning of higher order objectives is offered by Gagne, (1965).

Specifying instructional conditions combines a systematic use of the knowledge base with experience, "artfulness", consideration of learner characteristics, instructional context, stimulus situations, learner responses and feedback situations (Twelker, 1969). It would be most desirable if the suggested mix of knowledge, art and experience were primarily dependent on the research knowledge base, however, many gaps will exist, causing experience and "art" to play significant roles in the generation of instructional specifications. The determination of what content to teach (concepts, skills, values) and when to teach can be characterized by hierarchial organization of content and the narrower or smaller pieces by performance objectives. Thus, an entire curriculum can be structured into a hierarchy which originates with program goals and terminates in discrete teaching-learning activities. For example: the throw is a narrower piece of fundamental skills and these skills are a narrower piece of primary skills. Figure 8 presents such a structure for organizing content and materials which were used in developing the I CAN Curriculum. Specification of the instructional condition include operational definitions of the content, learner characteristics and strategies.

For a time it was believed that theories of motor learning or motor development would provide us with guidelines for prescriptive instruction. However, it quickly became apparent that this was not the case. Motor learning theory and motor development may contribute

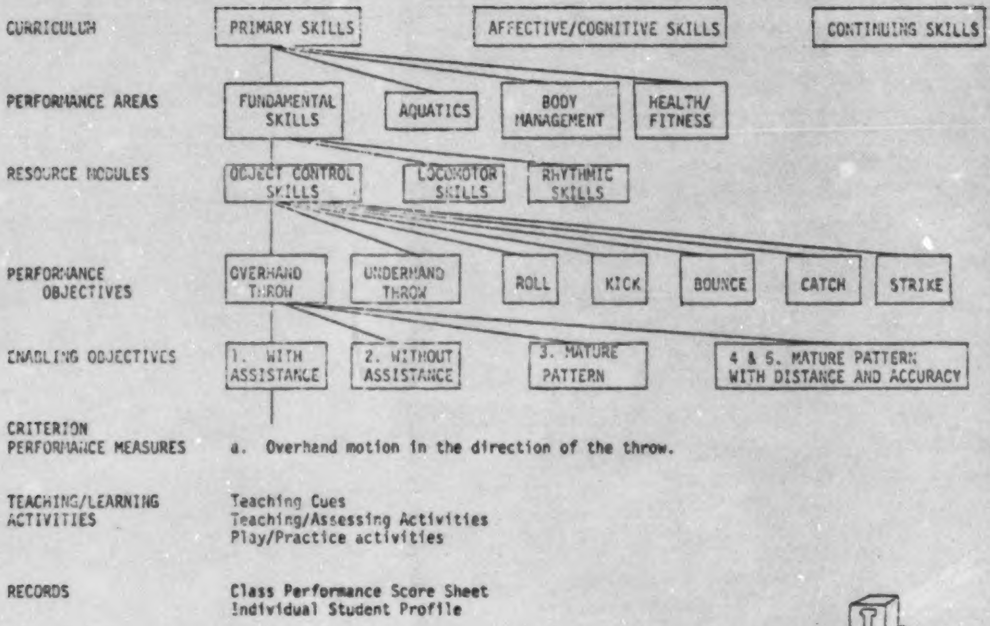

CURRICULUM
PRIMARY SKILLS
AFFECTIVE/COGNITIVE SKILLS
CONTINUING SKILLS
PERFORMANCE AREAS
FUNDAMENTAL SKILLS
AQUATICS
BODY MANAGEMENT
HEALTH/ FITNESS
RESOURCE MODULES
OBJECT CONTROL SKILLS
LOCOMOTOR SKILLS
RHYTHMIC SKILLS
PERFORMANCE OBJECTIVES
OVERHAND THROW
UNDERHAND THROW
ROLL
KICK
BOUNCE
CATCH
STRIKE
ENABLING OBJECTIVES
1. WITH ASSISTANCE
2. WITHOUT ASSISTANCE
3. MATURE PATTERN
4 & 5. MATURE PATTERN WITH DISTANCE AND ACCURACY
CRITERION PERFORMANCE MEASURES
a. Overhand motion in the direction of the throw.
TEACHING/LEARNING ACTIVITIES
Teaching Cues
Teaching/Assessing Activities
Play/Practice activities
RECORDS
Class Performance Score Sheet
Individual Student Profile

Figure 8. The I CAN curriculum structure for organizing content and materials

importantly to the guidelines for a theory of instruction, but a school learning model must encompass more elements. A school learning model of instruction must represent a set of statements, based on sound, replicable program which would permit one to predict how particular changes in the school environment (classroom or gym) would effect pupil learning. The conditions for pupil learning, in fact, become the curriculum. In this sense the learner, then, is the true curriculum. Figure 9 identifies elements considered in the formulating of the I CAN Instructional System.

Development of Instructional Prototypes

Development of Instructional Prototypes involves the act of systematically following the instructional specifications to produce the substance, form and order of the instructional materials. It involves the process of tanslating a set of written statements (specifications) into an educational process and product. Clarity and completeness of instructional specification, however, do not guarantee a quality product. Of equal importance are the difficult decisions concerning unique conditions, stimuli, format, strategies, etc., which require the abilities of talented developers. Since the curriculum prototype is necessarily removed from its underlying knowledge base, a tryout, built into the development process, becomes a necessary step for quality control. No matter how sophisticated the development process, developers have learned to expect about 60% effectiveness during the first implementation effort (Sorenson, 1971). The I CAN material design by performance objective is depicted in Figure 10.

The primary concern in the evaluation of the prototype is to determine, in a systematic fashion, the weakness or deficiencies of the instructional product. The process of formative evaluation is the suggested methodology (Cronbach, 1963; Scriven, 1967; Stake, 1967; Alkin, 1970; Sorenson, 1971). Since this process is formative, implying modification, evaluators must be concerned not only with what is deficient, but also why (Hastings, 1966). Concerns of appropriateness and effectiveness are the major areas of investigation. Small sample, cyclical studies which examine various elements of the program conducted within the context of intended use, should proceed broader field tests (Hamreus, 1969).

During the first year of the project, preliminary pilot tests, which examined areas and elements of the program, were conducted at Beekman Center. In the second and third year funding, the materials were implemented for broader field testing.

The standards for judging a program's effectiveness have been a point of disagreement in the field of evaluation. Cronbach (1963) favors comprehensive description and Scriven (1967) demands comparison. In the case of the formative evaluation of prototype materials, Hamreus (1969) clarifies the issue:

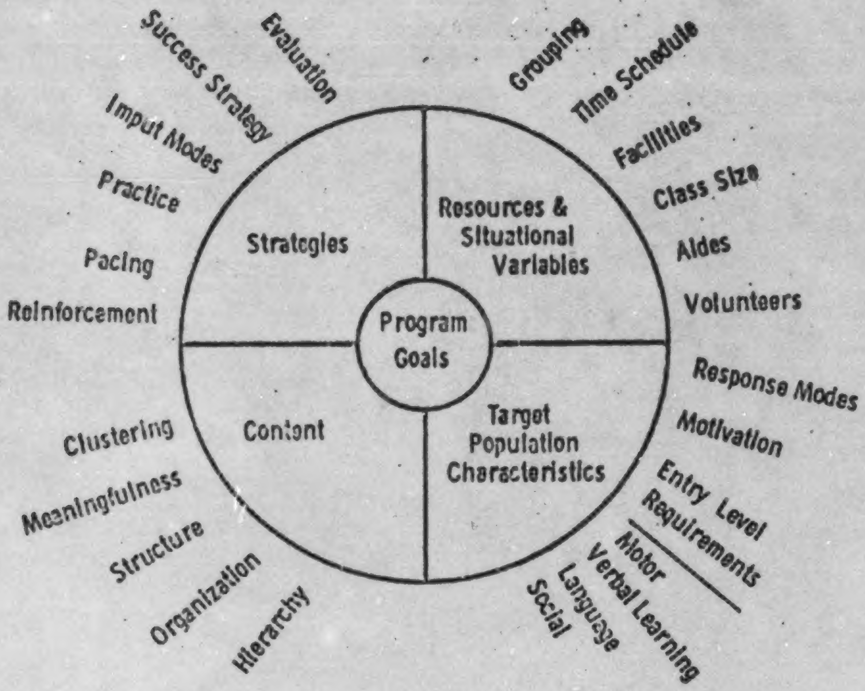
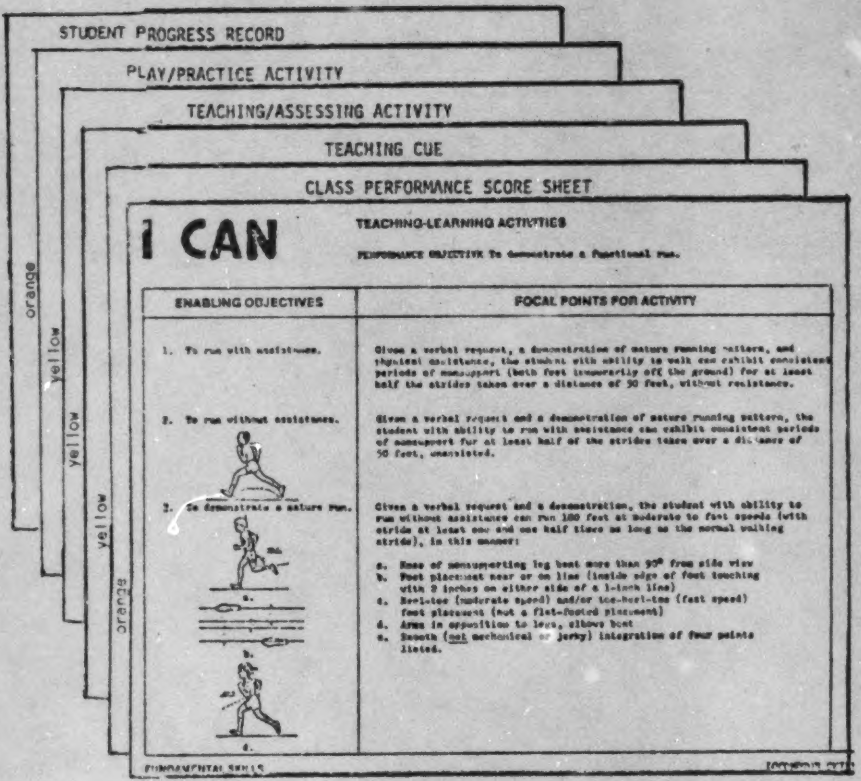

Success Strategy
Evaluation
Imput Modes
Practice
Pacing
Reinforcement
Strategies
Grouping
Time Schedule
Facilities
Class Size
Aides
Volunteers
Resources & Situational Variables
Program Goals
Content
Clustering
Meaningfulness
Structure
Organization
Hierarchy
Target Population Characteristics
Response Modes
Motivation
Entry Level Requirements
Motor
Verbal Learning
Language
Social

Figure 9. Instructional conditions considered in formulating the I CAN instructional system



I CAN

TEACHING-LEARNING ACTIVITIES

PERFORMANCE OBJECTIVE To demonstrate a functional run.

ENABLING OBJECTIVES	FOCAL POINTS FOR ACTIVITY
1. To run with assistance.	Given a verbal request, a demonstration of mature running pattern, and physical assistance, the student with ability to walk can exhibit consistent periods of nonsupport (both feet temporarily off the ground) for at least half the strides taken over a distance of 50 feet, without resistance.
2. To run without assistance.	Given a verbal request and a demonstration of mature running pattern, the student with ability to run with assistance can exhibit consistent periods of nonsupport for at least half of the strides taken over a distance of 50 feet, unassisted.
3. To demonstrate a mature run.	Given a verbal request and a demonstration, the student with ability to run without assistance can run 100 feet at moderate to fast speeds (with stride at least one and one half times as long as the normal walking stride), in this manner: a. Knee of nonsupporting leg bent more than 90° from side view b. Foot placement near or on line (inside edge of foot touching with 2 inches on either side of a 1-inch line) c. Heel-toe (moderate speed) and/or toe-heel-toe (fast speed) foot placement (not a flat-footed placement) d. Arms in opposition to legs, elbows bent e. Smooth (not mechanical or jerky) integration of four points listed.

FUNDAMENTAL SKILLS

LOCOMOTOR SKI

Figure 10. I CAN materials design by performance objective

> "When a new system has been sufficiently developed and defined and in use over a period of time such that its accomplishments can be predicted, then comparative analyses with another established system are appropriate. When the system is still new and essentially untried the only basis for judgment lies in how well it attains the objectives for which it was created (p. 22)."

Evaluation of an instructional prototype moves from informal, judgmental procedures toward more formal, evaluative research methodologies during the field test. Its relation to theory is primarily one of hypothesis generating and can only provide support for theory building in unusual situations where tightly controlled designs are possible. To provide for systematic inquiry into the deficiencies and alternatives for the revision of I CAN, an Evaluation Plan was developed and then implemented during the 1973-74 school year. The purpose of evaluation was to facilitate the refinement of the I CAN instructional system. Its primary function was to yield information, in the form of recommended revisions, to the developers of I CAN during its construction.

The primary focus of the evaluative activity was to identify deficiencies in the form, substance, and methodology related to the use of I CAN. Equally important was the identification of plausible alternatives to suggested deficiencies. In both areas the field-test teachers were the key performers. A major factor in the acceptance or rejection of alternative suggestions was the strength of the rationale offered in support of the suggested change. The major elements of the I CAN evaluation plan are outlined in Figure II.

The evaluation of I CAN was conducted in two phases. Phase I involved testing the feasibility of the I CAN materials with small-sample, cyclical investigations designed to facilitate user-developer interaction. Its purpose was to eliminate the major flaws of I CAN before subjecting it to a broader field test. Phase II involved the testing of materials modified in Phase I with a more representative sample of teachers and sites.* Its focus was to generate data that would provide the insight necessary to remediate deficiencies encountered by both physical education and classroom teachers in a wide range of implementation settings.

The Modification of Prototype Materials

The modification of prototype materials should be executed on the strongest data base possible. Generally speaking, all recorded deficiencies should be supplemented with alternative suggestions accompanied by a rationale that explains why they may be considered improvements. Revision criteria should be established prior to data collection and applied to each suggested change. Judgments must be made regarding whether or not the suggested modification is consistent with the original instructional

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*The 1973-74 field test was conducted in central lower Michigan. The test involved 20 centers and 31 teachers, and included both physical education specialists and classroom teachers (See Appendix A, Field Test Centers).

Question	Data Source	Instrumentation	Decision Criteria	Recommendations
1. Objectives technically acceptable?	Evaluation Staff	Objective technical quality checklist	All elements of behaviorally stated objective	Quality of objective statement
2. Objectives appropriate?	Experts Teachers	Review Teacher Feedback Form	Deficiencies noted by 10% of reviewers	Importance, clarity & substance of objectives
3. Was Program implemented as intended?	Consultants Teachers	Monitor Form Monitor Form (self-report)	Combined ratings as High, Moderate or Low	Teacher training Instructional Form, and Procedure
4. Differential student effectiveness?	Teachers & School Records	Student Data Sheet Developmental Inventors Teacher Feedback Form	Significant Relationships with student characteristics	Instructional materials revision Delimitation to special sub populations
5. Teaching-learning activities affect student change?	Students (Teachers)	Developmental Inventory	Significant gains of 1 or more focal points	Instructional Materials revision
6. Teacher reaction to the program?	Teachers	Teacher Feedback Form Personal Dialogue	Negative responses	All aspects of the Instructional System
7. Student reaction to the program?	Students (Teachers)	Teacher Feedback Form	Negative responses	All aspects of the Instructional System
8. Unanticipated consequences?	Teachers Parents Administrators Consultants Others	Unstructured responses	Negative responses	All aspects of the Instructional System

Figure 11. Overview of the major questions of interest in the Phase II evaluation of I CAN

specifications. In instances where inconsistency is apparent, both the suggested change and the instructional specification should be reviewed for inaccuracies.

Figure 12 is a schematic of the revision process employed in the I CAN curriculum development process. Procedurally, the revisions in the I CAN instructional system reflect input from students, teachers of various types, advisory board members, consultants, I CAN staff members and curriculum writers.

Recycling

Recycling represents the final stage of curriculum development, and is initiated for all or part of each instructional product based upon whether or not the stated objectives were attained.

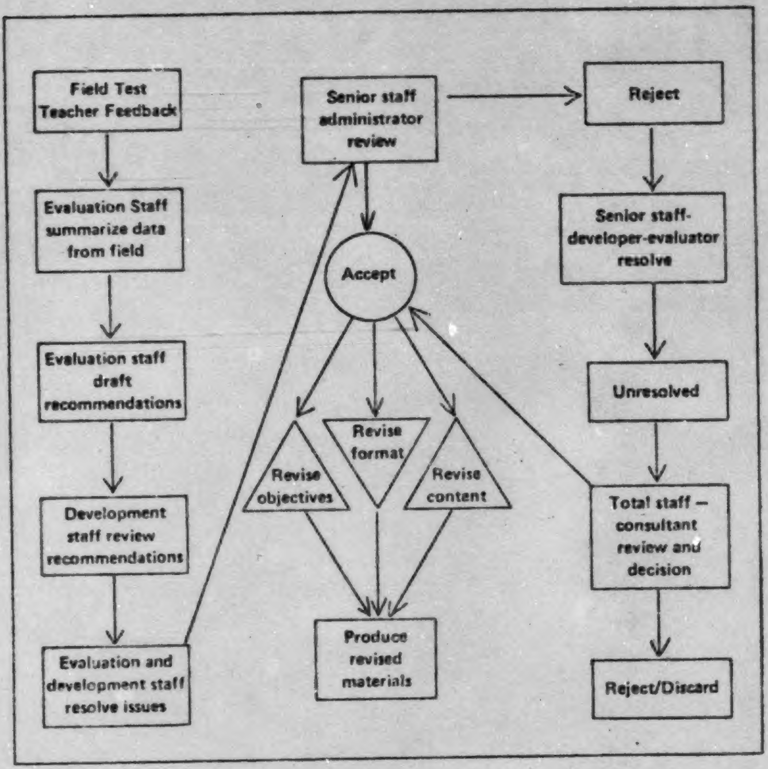
It should be noted that each of the curriculum development steps listed above is not a discrete process but rather one of overlapping complexities. It is important, however, that such steps be clearly in mind if curriculum development is to occur as a systematic conversion of the knowledge base into instructional practice.

Evaluation and Research in the I CAN Curriculum Development

As indicated in the previous section, evaluation is defined into the curriculum development process. Its obvious application falls between the development of prototype materials and the revision of those materials. A closer review of the curriculum development process, however, reveals that evaluation, in some form is an integral part of each curriculum development stage. It is the means by which we systematically attach merit to the results of: goals and objective specification, instructional design specification, prototype development, etc. Evaluation is therefore, highly related, or perhaps more accurately, completely intertwined with the curriculum development process.

Currently there appears to be few links between basic research and program evaluation. Comments of "no control" or "too general" leveled at applied research or evaluative research and, "too sterile" or "unrealistic" leveled at basic research are not uncommon although they appear entirely inappropriate within the broader educational research context. The associated assigning of degrees of "goodness" and "badness" according to one's orientation or training, is an unfortunate situation in that both research types have unique functions (Figure 13). "Goodness" and "badness", then, become appropriate only as descriptors of the degree to which the investigation was: (1) consistent with the stated purpose and (2) a rigorous application of the scientific method within contextual constraints.

An important potential relationship between basic research and evaluation is their mutual dependence for elevating both the relevancy of basic research and the quality of educational practice. Basic research provides the foundation upon which relevant goals,



Field Test Teacher Feedback
Evaluation Staff summarize data from field
Evaluation staff draft recommendations
Development staff review recommendations
Evaluation and development staff resolve issues
Senior staff administrator review
Accept
Revise objectives
Revise format
Revise content
Produce revised materials
Reject
Senior staff-developer-evaluator resolve
Unresolved
Total staff — consultant review and decision
Reject/Discard

Figure 12. I CAN materials revision process

	RESEARCH TYPE	
	Non-Evaluative "Basic"	Evaluative "Applied"
Category	"Typical" Characteristics	
Goal	Knowledge generation (hypotheses-theory-laws)	Testing the application of knowledge
Objectives	Increased understanding regardless of value for social change	Information for program planning, development or operation
Generalizability	High generalizability	Low generalizability - Data for description and judgment
Control	Control over all but independent variables	Limited control over intervening variables
Utilization	Future and/or immediate	Immediate
Timelessness	Generalizable across time	Time specific
Design Validity	High internal validity Low external validity	Low internal validity High external validity
Investigative Technique	Application of the scientific method	

Figure 13. Educational research characteristics

instructional specifications and subsequent instructional prototypes can be built. The evaluation of an instructional prototype provides a rich source of relevant research questions which should be investigated within the context of the tight controls characteristic of basic research. Although each step in the conversion of knowledge into practice provides a source of research questions, evaluative research seems to have a unique potential to surface particularly relevant questions for further research. This relationship is schematically portrayed in Figure 14. In this age of tight monies and practical priorities, it was particularly important to advance this relationship as a means to properly weighting the priority assigned to evaluative research questions by the Project Staff. Highly relevant research questions were identified, coded, and filed by the Project Staff.

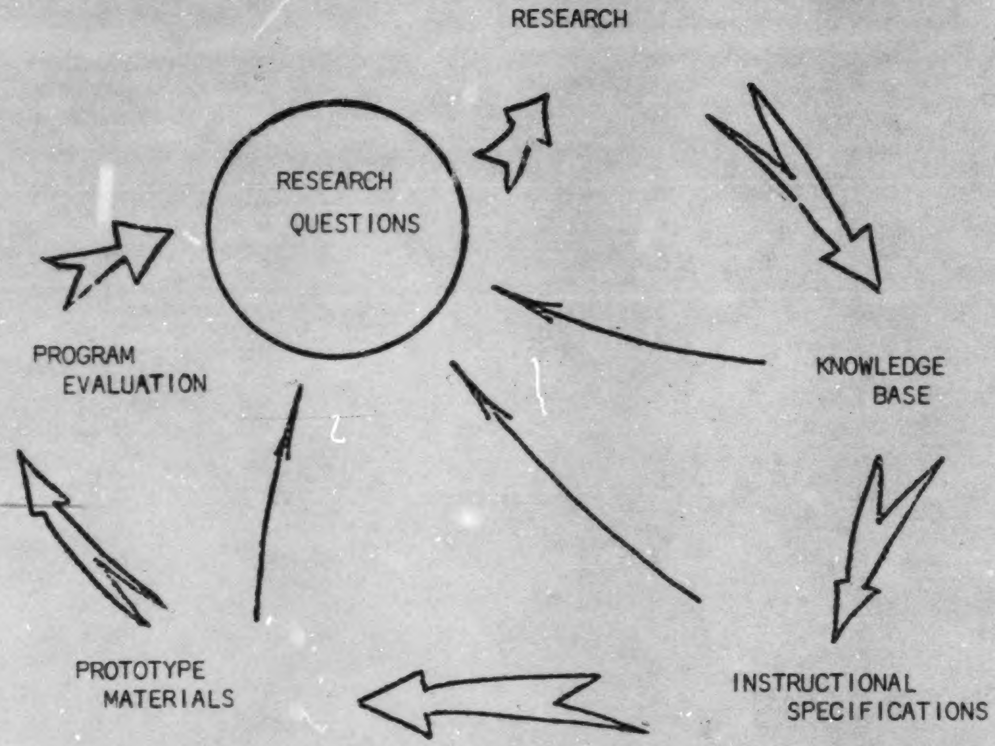

RESEARCH
RESEARCH QUESTIONS
KNOWLEDGE BASE
INSTRUCTIONAL SPECIFICATIONS
PROTOTYPE MATERIALS
PROGRAM EVALUATION

Figure 14. Relationships between research and evaluation within the I CAN curriculum development context

CHAPTER III

IMPLEMENTATION MODEL: INSERVICE TRAINING COMPONENT

Introduction

One of the most significant advances in special education during the past decade is the emphasis being placed on developing instructional materials specifically designed for handicapped children and youth. This has occurred because of the rapid growth in special education programs, increased availability of Federal Funds and also because of improved dissemination practices generated by the Instructional Materials Center Network. These materials, however, are substantially different in quality, and there is currently no systematic way of assuring that all materials are field-tested prior to being placed on the market.

Little, if any, emphasis in the past has been given by the professional community to the direct relationship that exists between relevant instructional materials, teachers well-trained in their use, and student achievement. Serious attention to this essential aspect of teacher education by curriculum developers will facilitate the implementation, dissemination and adoption of exemplary programs.

The opportunity to conduct curriculum research and evaluation carries heavy obligations. The obligations of the curriculum developers are two-fold. They must:

1. develop, implement and evaluate instructional materials and media

2. facilitate the dissemination of validated materials and media.

One obvious barrier to the implementation and dissemination of innovative programs and materials has been the lack of recognition of the value of both preservice and inservice training of teachers in the skills required to implement exemplary programs. To prevent failure in implementation and dissemination it is imperative that curriculum projects direct a substantial part of their effort toward teacher training, or face the unacceptable alternative of creating non-reactive materials.

Curriculum projects have three major teacher training responsibilities. First, they must develop a model of instruction which clearly identifies the teaching competencies necessary to implement their programs as intended. Second, they must develop and implement a training program to teach the competencies necessary to implement their program as intended. Third, they must evaluate the training materials and activities used by teachers to achieve the specified competencies.

Need for Inservice Teacher Training

The potential implementers of the I CAN Program come from a variety of backgrounds. The teacher in the large center for TMR students is usually a physical education specialist with a minimum of special education training related to TMR. The teacher in the small classroom units for TMR in many districts is usually a special education teacher with no physical education background. In some cases the delivery of physical education services to the TMR is accomplished by the special education classroom teacher with assistance from a physical education specialist who acts as a consultant to a group of classroom teachers in the district.

The role of the teacher in an I CAN classroom differs markedly from the traditional teacher's role. Traditionally, physical education programs for TMR students have been comprised of a collection of "adapted" or "modified" games and activities. Little attention has been given to the affect of these activities on student achievement of specified objectives. The teacher who uses the I CAN materials must be skilled in diagnostic teaching and experienced in creating and monitoring an individualized teaching-learning environment based on the assessment of motor skills. It is unreasonable to assume that all potential users of the material will possess the competencies necessary to implement the materials as intended by the developers.

Because of the varied delivery systems involved in providing physical education services for TMR students and because of the change in teacher roles required when using the instructional materials, competency-based inservice instruction was seen as an essential component of the I CAN curriculum development and evaluation effort.

I CAN Teacher Training Materials

The instructional module is increasingly being used to actualize competency-based teacher education (CBTE) (Houston, 1972; AACTE Committee, 1974). A module is a set of structured experiences to facilitate the learner's demonstration of competencies which were specified in the design phase of CBTE program development. A series of inservice modules were developed for the training of the I CAN field test teacher. These inservice modules were organized and sequenced to comprise a comprehensive Teacher's Manual.

Materials Design Specifications

Identification of Teaching Competencies: Performance Objectives

Prior to the development of the inservice modules, the teacher competencies and rationale for their selection were determined by the I CAN Project Staff. The rationale or conceptual base upon which the Project Staff based their selection of competencies was the teaching behavior model individualized physical education instruction through continuous progress education programming (Figure 15).

The competencies, and performance objectives, derived from the model of instruction proposed by the Project Staff are listed, by module, as follows:

1. The teacher will be able to correctly use the organization, structure and logic of the I CAN Curriculum to develop a long-term (6 or more weeks) instructional plan.
2. The teacher will be able to assess student status as defined by the objectives of the I CAN Curriculum.
3. The teacher will be able to prescribe daily lessons, based on need assessment, using the Teaching Learning Activities and Activity Participation Materials provided by the I CAN Curriculum.
4. The teacher will be able to use alternate teaching strategies and organizational procedures in teaching the I CAN Materials.
5. The teacher will be able to evaluate and record pupil progress and determine whether to recycle or terminate instruction.

Learning Stages

The competency stages identified as being necessary and sufficient for educating all users of the I CAN Curriculum to bring about the desired learning in students is illustrated in Figure 16. These stages were used to specify and sequence the enabling objectives related to each of the above stated terminal performance objectives in each inservice module.

Stage One is the study of the desired learner outcomes for the students of the teacher receiving the inservice training. This focuses attention on the effects we hope our trained teachers will bring about. This helps us conceptualize, organize and specify outcome. It also allowed us to identify the instructional units in the Teacher's Guide and the instructional experiences needed by the field test teachers.

In Stage Two we identify the instructional tasks that enable us to determine if the teacher knows the content.

In Stage Three, we design instructional tasks that enable us to determine that the inservice teacher is able to use acquired knowledge and skills in problem-solving activities with the I CAN Materials.

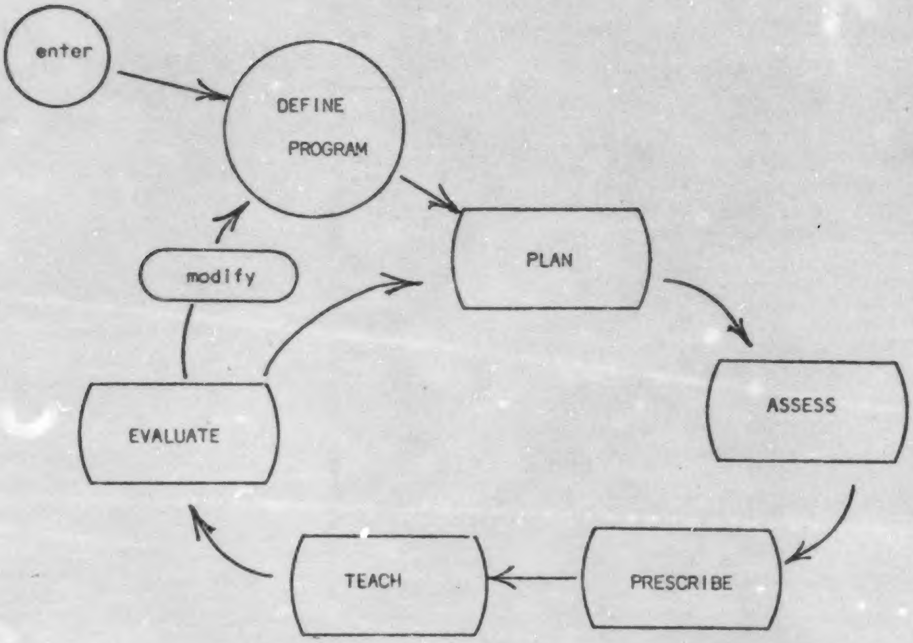

enter
DEFINE PROGRAM
PLAN
ASSESS
PRESCRIBE
TEACH
EVALUATE
modify

Figure 15. Teacher behavior model

Stage Four centers around the process issue, the knowledge of learning, child development, school environment and interactive implications these have for teaching activities. Simply stated, what does the inservice teacher need to know in order to bring about desired skills identified in Stage One.

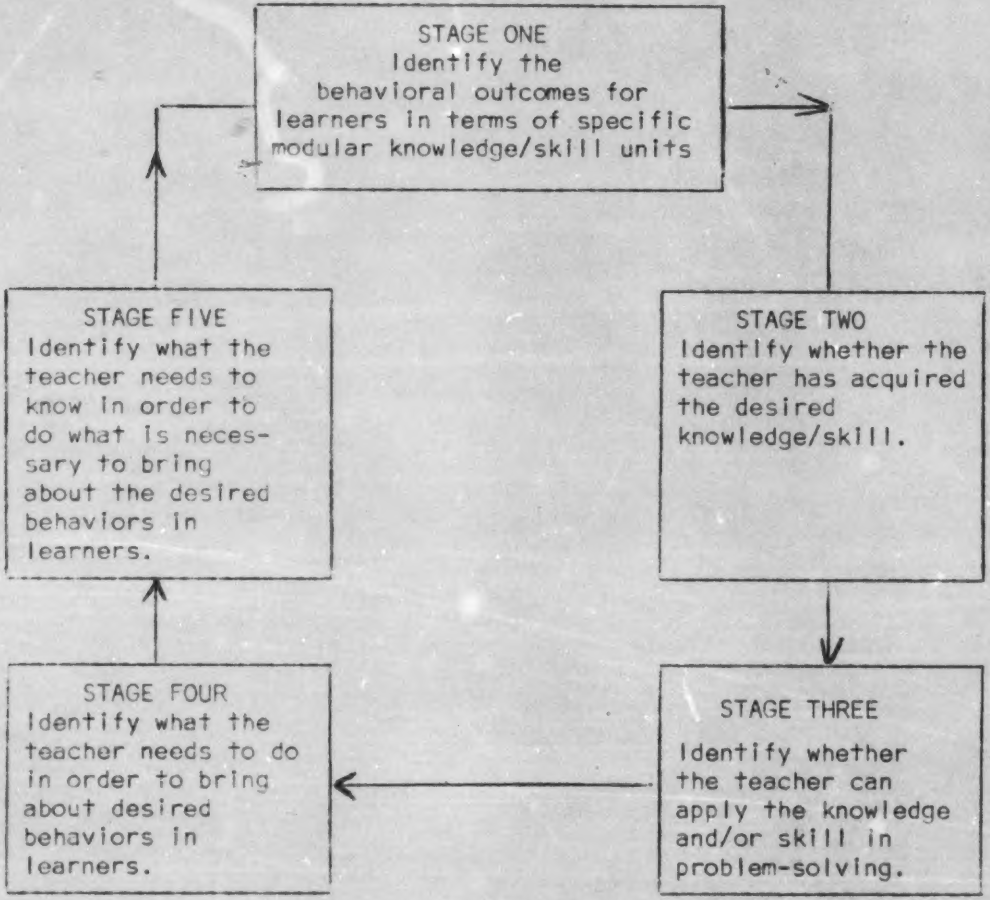

STAGE ONE
Identify the behavioral outcomes for learners in terms of specific modular knowledge/skill units
STAGE TWO
Identify whether the teacher has acquired the desired knowledge/skill.
STAGE THREE
Identify whether the teacher can apply the knowledge and/or skill in problem-solving.
STAGE FOUR
Identify what the teacher needs to do in order to bring about desired behaviors in learners.
STAGE FIVE
Identify what the teacher needs to know in order to do what is necessary to bring about the desired behaviors in learners.

Figure 16. Competency stages for inservice training

Stage Five includes the design of instructional tasks that would enable the inservice consultant to be sure that inservice teachers are able to use, by acting upon the knowledge acquired in Stage Four; they can, in fact, perform the teaching behavior they know is recommended for bringing about the desired pupil behavior change.

This set of five stages completes a cyclical set of activities seen as necessary and sufficient for training teachers to bring about desired learning in pupils when using the I CAN Curriculum.

Materials Need Specifications

The modules were designed to provide a self-instructional process for the teacher. They were individualized to allow the teacher to work at his/her own pace. The modules were personalized so that teachers could use them based on their entry skills and need assessment.

Summary

The development of the competency-based instructional modules that comprise the Teacher's Guide was initiated by an identification of need. On the basis of this need assessment, teaching competencies were derived from a model of individualized physical education instruction. Materials design specifications were systematically followed to produce the instructional materials.

Direct Response Model

Implementation Procedure

The procedure selected for the inservice training of the I CAN field test teachers was an adaptation of the Active Response Inservice Training Method described by Burke and Rowland (1971). The adaption to this design, hereafter referred to as the Direct Service Model, was the inclusion of the series of inservice modules that comprised The Teacher's Guide to the Use of the I CAN Materials (I CAN Project Staff, 1973).

The unique characteristics of the Direct Service Model is that direct supportive service is given to the teacher in the classroom where the teacher is expected to function. This method reduces the didactic nature of traditional inservice models and is based on the following learning principles:

1. Active involvement by the learner facilitates learning.

2. Knowledge of results and reinforcement of success facilitates learning.

3. Opportunities for distributed practice and feedback facilitates learning and its generalization.

The selection of the direct service model over a more traditional inservice procedure was based on several considerations. First, the design in general meets the criteria for both the generic and implied characteristics of Competency-Based Teacher Education

Programs. Second, since one intent of the inservice procedure was the formative evaluation of the inservice modules, the interaction between consultant and teacher provided for extensive monitoring and debriefing relative to these inservice instructional materials. Third, the model has the following practical advantages:

1. It makes provisions for both content and process training. The Teacher's Guide provides extensive content materials. A consultant (inservice trainer) is assigned to each Field Test Teacher and visits the site on a bi-monthly basis. Initially, the meetings are designed to orient and as-ist the Field Test Teacher as he/she goes through the content materials (Teacher's Manual). As the teacher achieves portions of content knowledge, the teacher and consultant enter the gymnasium together and implement content through the process component - working "on the job" with the teacher and his/her own students in the setting where the teacher is expected to function.

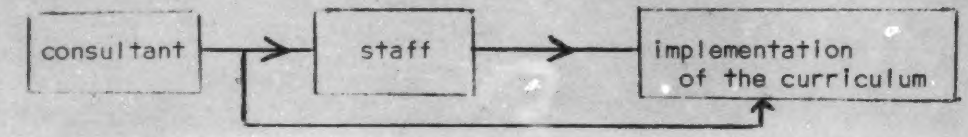
2. It accommodates conflicts that might arise if the teacher were away from his/her assignment for workshops or inservice sessions either frequently or for extended periods of time.

3. It accommodates the integration of the I CAN curriculum into environmental factors, equipment, facilities, management strategies, diagnostic procedures, cognitive, psychomotor and affective goals, current staffing, scheduling, procedural and curricular goals of the local agency.

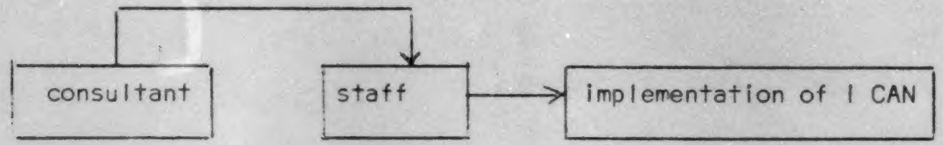
Specific Steps Used in Implementation

The specific steps used by the Project Staff inservice trainer-consultant in implementing this direct service model are outlined below:

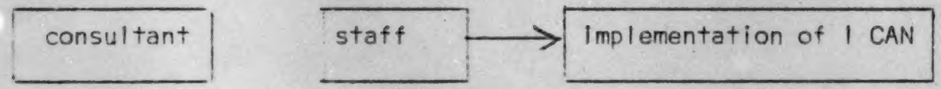
1. The first step is the identification of the teacher competency essential to the proper implementation of the I CAN Curriculum. This is accomplished as a cooperative effort by the I CAN consultant and the teacher. Direct attention to the competencies (Performance Objectives) stated in the Teacher's Guide defines training areas specific to the implementation of the I CAN Curriculum.



2. The second step is the assessment of the teacher's status relative to the competency. Assessments are made to further define or to identify the status of the teacher concerned. These assessments may be the formal measures derived from class observations via the I CAN monitoring forms or assessments from the post tests at the end of each inservice module. They may also be informally determined by the I CAN consultant through the teacher reactionnaires, debriefing sessions, on the spot observations or through informal conversations with the staff. The I CAN consultant may assess the teacher

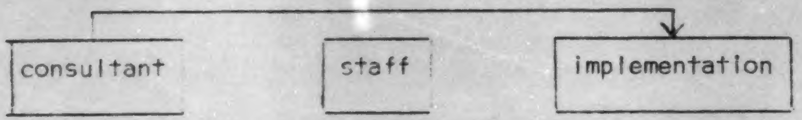


or the staff may assess themselves.



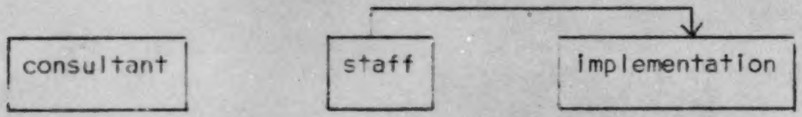
3. The third step may involve a demonstration of the correct procedure necessary to implement the I CAN materials, by the consultant, in the school setting.

When the instructional materials have been deficient, the consultant demonstrates the correct use of the I CAN materials to the staff in the classroom with the students. A verbal explanation may accompany the demonstration to clarify the consultant's procedures. Verbal explanations without physical demonstrations are used only when the implementation problem is one that does not directly involve the students, such as long term planning or the construction of a lesson plan. Verbal demonstrations may also be used when it is certain that the implementation procedure will work because it is appropriate to the students in that situation and does not need to be tested by the consultant. At this point in the inservice training the demonstration step serves two purposes: 1. it allows the staff to become familiar with the implementation procedures through modeling of their correct use; 2. it is possible, during the demonstration, for the consultant to adjust the procedures if needed to better fit the students, the learning goals, and the actual situation. If the demonstration reveals that adjustments must be made then the inservice trainer makes these adjustments and repeats the demonstration.



4. The fourth step involves the development of the staff's skills in using the I CAN materials.

The staff member is given the opportunity for active appropriate practice with his own students. During this time the consultant observes and provides the staff with cues and prompts as needed while simultaneously reinforcing them verbally for their approximate and correct usage of the implementation procedures. This practice would occur immediately following the completion of the inservice modules of the demonstration by the inservice trainer. The time needed for instruction will depend upon the complexity of the competency. Written guides describing the implementation procedures in an outline form should always be left with the staff to reinforce their skills in the absence of the consultant. The trainer should retain a carbon copy of the procedure for follow up reference.



5. The fifth step concerns follow up with the staff member on the implementation and progress of the inservice procedure.

The inservice trainer follows up the progress of the teacher training as it is being carried out by the staff in the classroom by providing any needed adjustments in procedures, reassessments of students, or additional instruction of staff in the implementation procedures. The consultant discusses student performance data with staff during informal meetings in order to evaluate the progress and direction of the curriculum implementation. Follow up may include debriefing sessions with groups of staff people from neighboring centers after school hours.

These sessions would be used only to reinforce and extend understanding of concepts already being used by staff with students, such as assessment activities, progress record keeping, terminology, etc. Sessions of this type would include debriefing sessions related to sections of the Teacher's Guide that may need revision.

CHAPTER IV

I CAN INDIVIDUALIZED INSTRUCTIONAL SYSTEM

For over half a century, physical educators have been committed to individualized instruction as the answer to the problem of how best to teach students what they need to know. Yet, only now have we begun to put together the elements which will help the teacher provide a situation in which a student can be taught physical education according to his individual needs, at a pace that is right for him, and in a way that efficiently uses the resources available. To help schools and teachers of the trainable mentally retarded focus on individual needs, the I CAN instructional system was designed.

The I CAN individualized instructional system is designed to produce higher educational achievement by providing for differences among students in rate of learning, learning style, entry level, motivation and other significant learning characteristics of the trainable mentally retarded. In fact, these learning characteristics are significant for instructional programming and materials design for all students, handicapped and non-handicapped.

Elements of Success for Individualized Instruction

The elements considered important for successful individualized instruction in physical education include: goals and objectives, materials, content analysis, methodology, evaluation and organization. Each element is described in further detail in the following paragraphs.

Goals and Objectives

These are clear definitions of what students will be expected to learn and at what level. The goal with specific objectives provides the road to mastery. Without goals there is no reachable end-point for which highly specific steps or objectives can be spelled out. Continuous growth--continuous progress education--is the goal. Specific objectives spell out what children should learn within the physical education curriculum area. Specific sequential objectives help the teacher to determine learner needs in terms of skills or concepts.

Materials and the Learner

The question of equality of capacity is not central. What is of concern is the possibility of growth, of developing abilities, of chance to succeed and of the achievement of mastery in specific objectives. Individualized criterion referenced testing will provide the means for planning and implementing a program of individualized physical education instruction appropriate to the needs of the learner. Individualized criterion referenced tests provide diagnostic information that has implications for teaching trainable mentally retarded students. Assessment of the student's strengths and weaknesses is an evaluation of his position on a skill continuum. Emphasis is placed on the student's current level of skill development, and the behavioral components of the next skill to be learned.

Preparation of materials must be precise, detailed and geared directly to eliciting the responses needed for learning. The materials must be designed for flexibility, adaptability, and usability for the varied types of educational delivery systems for the trainable mentally retarded.

Content Analysis

The curriculum in physical education needs to be developed with emphasis on its structure to help identify the interrelationships and dependencies between components of the instructional content. Reexamination of content as well as redefinition of the goal as mastery will help us put the pieces together for increasing success in teaching the first steps of the more complex set of learnings.

Methodology

Individual instruction can be represented, (a) by the need for providing a one-to-one correspondence of teacher and learner; (b) by grouping of students matched to materials with consideration given to their present skill development, rate of learning and preferred learning styles--accommodate differences among pupils by grouping them within the common-objective groupings established through diagnostic information obtained through criterion reference testing. In this way, all students are involved in instruction and practice appropriate to assessed need. Diagnostic-prescriptive teaching means choosing effective instructional strategies for students who differ on any number of variables related to learning. Diagnostic-prescriptive teaching is based on 3 assumptions:

1. These children enter the teaching situation with a wide range of strengths and weaknesses relative to model skill learning.

2. These strengths and weaknesses can be reliable and validly assessed through the task analysis model, i.e., skill development criteria of what the student is to learn.

3. Skill development, skill assessment and prescription of instruction is based upon a child's standing in the hierarchical sequence of motor skill development.

Evaluation

Since growth and continuous progress is the goal, evaluation is concerned with the individual rather than the group. Stating specific objectives with built-in feedback to the learner and for instructional programming makes the flow of evaluative information not only continuous but precise.

Organization

Management design by objectives for organizing individualized instruction and for grouping learners by common-objectives is possible because other elements in the instructional programming model are clearly delineated. Pupils can be organized in relationship to successive levels of progress through a well-defined sequence of materials, or they can be organized into smaller groups or in one-to-one relationships. In this way, the teacher can organize instruction so that the maximum amount of time may be spent in appropriate instruction and practice.

Curriculum Materials/Instructional Procedures

The success in individualizing instruction is in the development of curriculum materials for individualization of programming and of adequate preservice and inservice training programs for implementation.

Six major features characterize the curriculum/instructional materials designed for implementing the I CAN individualized instructional system. These features include diagnostic-prescriptive teaching, accountability, flexibility, replicability, adaptability and interrelationships. Each feature is described below.

Diagnostic-Prescriptive Teaching

I CAN provides the situation in which a child can be taught according to his individual strengths and needs, at a pace that is right for him, and in a way that efficiently uses the resources available. Diagnostic-prescriptive teaching provides for the most effective instructional strategies for students who differ in characteristics believed to be related to specific learning tasks. It focuses on skill development, skill assessment and prescription based upon the student's standing in the hierarchical sequence of skill learning development. The model for individualizing instruction to facilitate diagnostic/prescriptive teaching requires:

1. Criterion-Reference Testing

   Diagnostic tools used by the teacher for assessing student's strengths and needs on objectives specified for instruction.

2. Prescriptive Teaching/Learning Activities

   Prescriptive teaching/learning activities coded to skill level, response level (output mode), social grouping, fitness level, learning level (input mode).

3. Evaluating Continuous Progress and Planning

   Continuous progress evaluation and planning through teacher observation of student outcomes; progress reporting and record keeping.

Accountability

Accountability is painlessly operationalized in the I CAN instructional system. It is characterized by the six-step Teacher Behavior Model outlined below:

Accountability Process	I CAN Model
1. Establish Common Goals The common goals of education for all children.	1. We accept these goals and consider them to be givens upon which to base our program.
2. Specification of Performance Objectives Intended to operationalize the STATED goals through specific measurable statements of instructional intent.	2. Program Planning You are systematically selecting the performance objectives for your program (POs and EOs).
3. Assessment of Student Needs Assessing student status with respect to the STATED performance objectives.	3. Assessment Assessment as used in I CAN and the recording of student status on the Student Performance Score Sheet.
4. Specification of Delivery Systems Assessment data to identify effective means of teaching desired learnings.	4. Teaching-Learning Activities (TLA) Selected TLAs are based upon assessment and are directly linked to the achievement of the desired objectives.

5. Evaluation Serves to make a judgment of worth regarding the delivery system (did it work?). Attempts to provide information to be used to improve instruction.	5. Reassessment - determination of positive and negative aspects of student achievements.
6. Recommendations The output of the evaluative process and reflect the changes suggested by the collection and analysis of the evaluative data.	6. Replanning - and subsequent decision-making related to continuing to teach, recycle, revise the lesson, etc., based upon student performance information.

Flexibility

The I CAN materials are designed for maximum application in a variety of teaching situations. Modules can be used to develop a total program or performance objectives can be individually incorporated into existing physical education curricular programs. For example, if an existing physical education program is working well except for one or two program areas, modules can be selected for implementation, or several I CAN performance objectives may be added to an existing program. Differences within school-community-home projects and educational objectives must be provided for within the performance objectives. The instructional procedure/modular materials may be adapted for use with any handicapped student.

Replicability

The instructional procedures with the curriculum resource materials provide a replicable instructional program in physical education. The conditions under which the child is learning are specified: the expected performance outcome, the input mode, the output mode, the entry level requirement, the physical environment/facilities, the instructional procedure (i.e., individual, small group, large group, teacher directed, etc.). Like explicating a detailed experimental methodolocy for the purpose of allowing replication, the specification of treatment in such detail will allow one to repeat or avoid those aspects of the program which result in positive or negative achievements.

Adaptability

The instructional procedures/curriculum must be adaptive for a wide range of variability in learning characteristics. The behavioral approach makes it possible for individualized programs working with individual learners or group of learners within common-objective groupings established by assessment. Children with different handicaps can be integrated with children who have no handicaps. The program is built around behavioral objectives which are age free. It is adaptable to all experiential and cultural differences among children.

Interrelationships

The individualized curriculum/instructional program provides for the reinforcement between physical activity and other aspects of the school curriculum and to home activities. Concepts from such subjects as art, music, math and science, as well as the more obviously related areas of health and daily living, may become part of physical education instructional programming model. For example, counting and number skills may be incorporated into the scoring of a game.

Instructional Program Model

A system, no matter how well organized, will not produce individualized instruction by itself. To help schools and teachers of the trainable mentally retarded focus on individual needs, the I CAN model for instructional programming was developed (Figure 17). The model design is based on four questions:

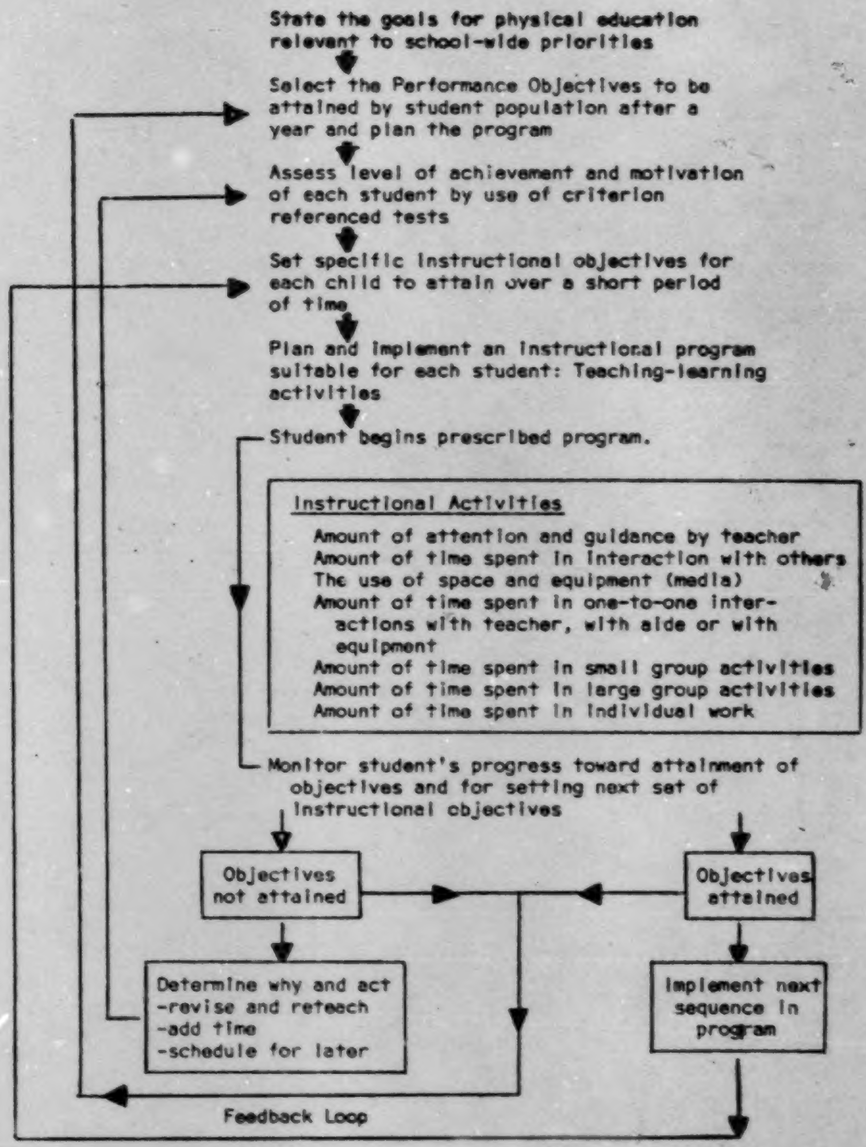
1. What is reasonable for Trainable Mentally Retarded students to learn in physical education within a given school?

2. Which student needs to learn which skills or concepts?

3. What are the most effective ways to teach these skills or concepts?

4. How does the teacher know what each child has learned?

In the first phase of the Instructional Programming Model, the physical education goals are adopted or developed by the teachers for the student population of the building. The objectives are selected and serve to focus attention on priorities, the student's need to achieve stated goals. Thereby the objectives are the road to mastery of the goal.



State the goals for physical education relevant to school-wide priorities

Select the Performance Objectives to be attained by student population after a year and plan the program

Assess level of achievement and motivation of each student by use of criterion referenced tests

Set specific instructional objectives for each child to attain over a short period of time

Plan and implement an instructional program suitable for each student: Teaching-learning activities

Student begins prescribed program.

Instructional Activities

- Amount of attention and guidance by teacher
- Amount of time spent in interaction with others
- The use of space and equipment (media)
- Amount of time spent in one-to-one interactions with teacher, with aide or with equipment
- Amount of time spent in small group activities
- Amount of time spent in large group activities
- Amount of time spent in individual work

Monitor student's progress toward attainment of objectives and for setting next set of instructional objectives

Objectives not attained
Objectives attained
Determine why and act
-revise and reteach
-add time
-schedule for later
Implement next sequence in program
Feedback Loop

Figure 17. I CAN instructional programming model

In the next phase, the staff faces the task of teaching and assessing to determine each child's level of skill development and to pinpoint skill deficiencies. Information on learning styles and motivation levels is also obtained in order to plan individual instructional programs.

Moving to the next phase in the model, a suitable objective is selected for each child's instructional program in the days immediately ahead. Selection of an objective for a particular student is not done without considering information about other students' needs. The choice of an objective for each student is made in the context of group information, availability of staff and facility assignments. The group is the set of students identified to work on a common objective.

Planning an instructional program whereby the student attains his objectives is done by the individual teacher. Grouping may be done within the common-objective groupings. Students are instructed with consideration given to their present skill development, rate of learning, and preferred learning styles. Providing for differences in learning styles requires verbal and nonverbal input and response modes; flexibility in the use of space and staff. The staff may create different learning modes including one-to-one, independent, and various kinds of small-group interaction within the class group.

Students are assessed to determine attainment of objectives. Assessment is on-going and takes place during instruction, play, and practice time. If the student attains his instructional objective, he then moves ahead in the sequence to the next objective. If a student does not attain his objective, new short-term instructional objectives must be set.

CHAPTER V

PROJECT END PRODUCTS

Curriculum End Products

Materials Produced

There are three Project end products:

1. I CAN Modular Resource Materials. Four performance areas around which the curriculum materials and instructional procedures are developed. The scope of these Primary Skills performance areas, with topical headings of modular performance objectives are presented in Figure 18. The end products which are being prepared for publication and dissemination for school year 1976 are as follows:[1]

Primary Skills Performance Areas	Instructional Resource Modules
Aquatics	Self-Rescue Skills
	Strokes
	Adjustment to Water
Body Management	Body Awareness
	Awareness of Environment
	Controlling the Body
	Daily Living Postures
Fundamental Skills	Locomotor Skills
	Object Control Skills
	Rhythmic Skills
Health/Fitness	Physical Fitness
	Moving and Growing

2. Teacher's Manual. The implementation of the I CAN instructional system relies on a Teacher's Manual. The teaching skills are competency-based for use by classroom teachers, by physical education specialists, and by combinations of the two.

3. Final Report. A two-part document, the I CAN Project Report, will be available at cost for interested persons. Section I will present curriculum development and dissemination activities. Section 2 will present curriculum evaluation and results.

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[1] The organization portrayed here reflects modifications made subsequent to the 1973-74 field test.

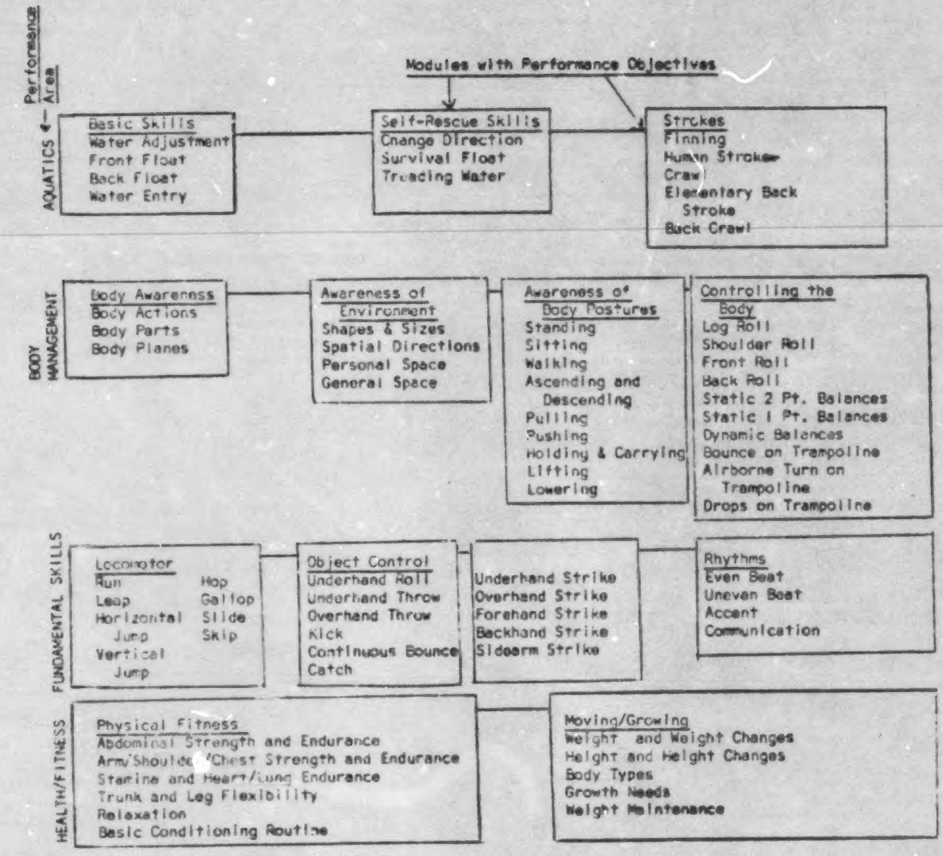

Performance Area
Modules with Performance Objectives
AQUATICS
Basic Skills
Water Adjustment
Front Float
Back Float
Water Entry
Self-Rescue Skills
Change Direction
Survival Float
Treading Water
Strokes
Finning
Human Stroke
Crawl
Elementary Back Stroke
Back Crawl
BODY MANAGEMENT
Body Awareness
Body Actions
Body Parts
Body Planes
Awareness of Environment
Shapes & Sizes
Spatial Directions
Personal Space
General Space
Awareness of Body Postures
Standing
Sitting
Walking
Ascending and Descending
Pulling
Pushing
Holding & Carrying
Lifting
Lowering
Controlling the Body
Log Roll
Shoulder Roll
Front Roll
Back Roll
Static 2 Pt. Balances
Static 1 Pt. Balances
Dynamic Balances
Bounce on Trampoline
Airborne Turn on Trampoline
Drops on Trampoline
FUNDAMENTAL SKILLS
Locomotor
Run
Leap
Horizontal Jump
Vertical Jump
Hop
Gallop
Slide
Skip
Object Control
Underhand Roll
Underhand Throw
Overhand Throw
Kick
Continuous Bounce
Catch
Underhand Strike
Overhand Strike
Forehand Strike
Backhand Strike
Sidearm Strike
Rhythms
Even Beat
Uneven Beat
Accent
Communication
HEALTH/FITNESS
Physical Fitness
Abdominal Strength and Endurance
Arm/Shoulder/Chest Strength and Endurance
Stamina and Heart/Lung Endurance
Trunk and Leg Flexibility
Relaxation
Basic Conditioning Routine
Moving/Growing
Weight and Weight Changes
Height and Height Changes
Body Types
Growth Needs
Weight Maintenance

Figure 18. The scope of the I CAN primary skill resource modules

Materials Available

The revised edition of the 1973-74 materials are available as demonstration materials for workshops related to implementation/inservice training for school personnel wishing to use the instructional system during 1975-76, for professional meetings, and for preservice education programs.

A sample performance objective from the revised object control module is presented at the end of the section. In addition, the content outline with a sample flow chart for the Teacher's Manual is included.

Recently, an Associated Learnings Project was funded by the Bureau of Education for the Handicapped. This project will focus on refining and validating the use of Mini-Curricular Action Learning Teaching Strategies incorporated into the skills for trainable mentally retarded students. A projected time-table for the development of Associated Learnings and production of the Primary Skills is presented in Figure 19.

Implementation Model

The model developed by the Project Staff for implementing the I CAN individualized instructional system includes workshops and on-site consultation for inservice training.

The Workshop Demonstration involves direct participation by workshop persons. The primary purpose of the I CAN Individualized Physical Education Workshop is to provide participants with techniques and materials for implementing a diagnostic/prescriptive motor activity program. The structure of the sessions is such that the needs of physical educators, special educators, classroom teachers, and teacher consultants are met.

The technique for individualizing physical education instruction using the I CAN materials, has been used successfully by classroom teachers and physical educators. This model for diagnostic/prescriptive teaching aids the teacher in:

-goal identification
-program planning
-need assessment
-prescription
-measuring student progress
-evaluating

Each of the above teaching tasks is described in a step-by-step sequence with clearcut examples. Thereby, the participant is provided with an efficient means of implementing the diagnostic/prescriptive process.

The demonstrations at the I CAN Individualized Physical Education Workshop involve direct participation by workshop attendants. This

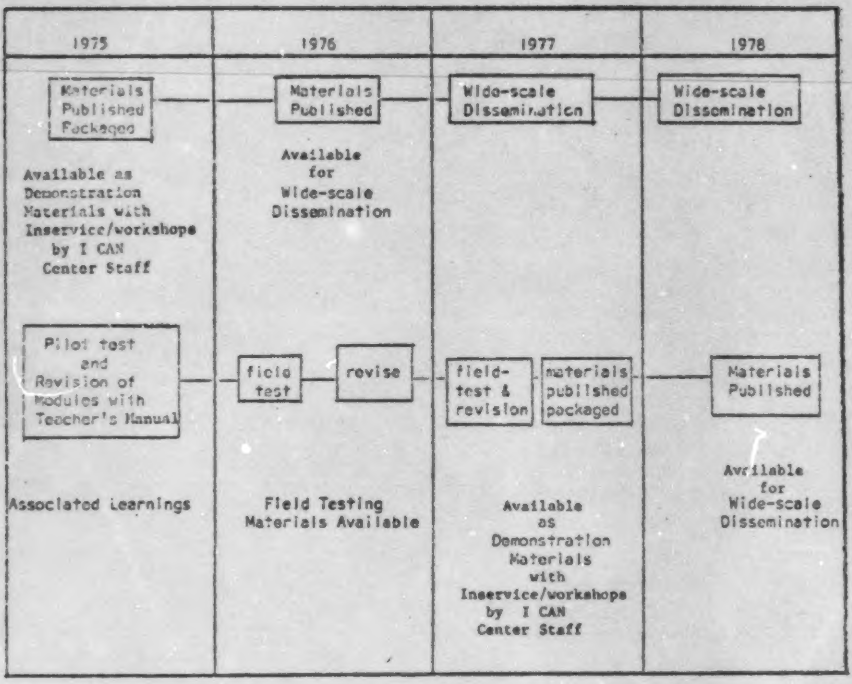

1975
1976
1977
1978
Materials Published Packaged
Materials Published
Wide-scale Dissemination
Wide-scale Dissemination
Available as Demonstration Materials with Inservice/workshops by I CAN Center Staff
Available for Wide-scale Dissemination
Pilot test and Revision of Modules with Teacher's Manual
field test
revise
field-test & revision
materials published packaged
Materials Published
Associated Learnings
Field Testing Materials Available
Available as Demonstration Materials with Inservice/workshops by I CAN Center Staff
Available for Wide-scale Dissemination

Figure 19. A projected timetable for the development of I CAN

is enhanced by demonstrations and individual instruction by the I CAN Staff Members. Elementary age children are available for these practice/demonstration sessions.

A workshop includes the following sessions:

Diagnostic Tools
Assessment of Student Needs

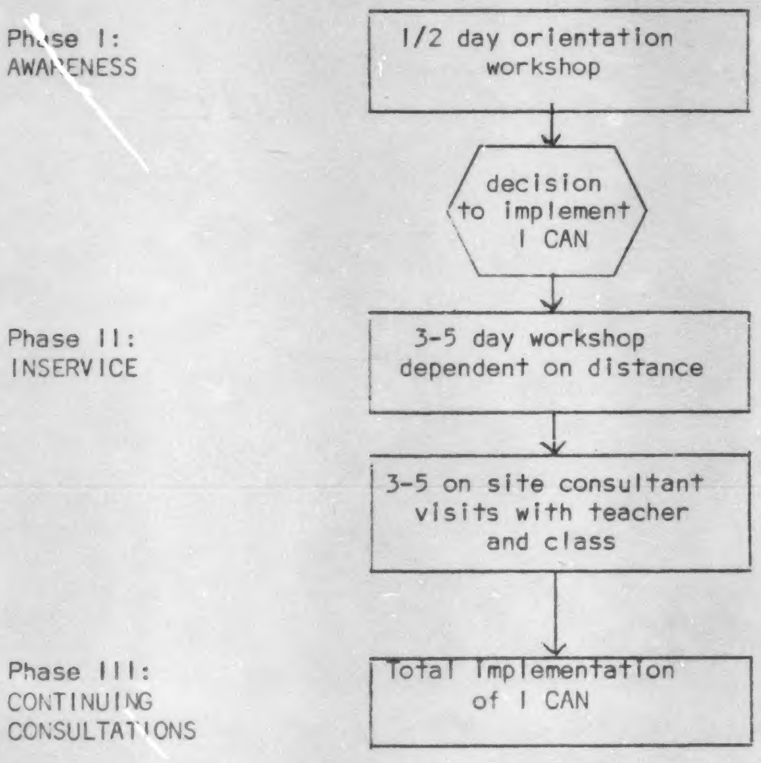
Prescription
Individualized Instruction

Teaching/learning Procedure
Lesson Planning and Organization

Measuring Student Progress
Continuous Progress Reporting and Record Keeping
Recommending Change

Program Planning
Identifying Program Goals

The Implementation Model typically used and recommended to institutionalize the desired change includes both workshops and on-site visitations:


Phase I:
AWARENESS
1/2 day orientation workshop
decision to implement I CAN
Phase II:
INSERVICE
3-5 day workshop dependent on distance
3-5 on site consultant visits with teacher and class
Phase III:
CONTINUING CONSULTATIONS
Total Implementation of I CAN

Field Research Service Unit in Physical Education and Recreation for the Handicapped

The implementation of a Field Research-Service Unit in Physical Education for the Handicapped at Michigan State University was a by-product of the I CAN Curriculum. To develop a viable unit, all monies generated from dissemination of the I CAN Instructional System will be designated for curricular development and field services for the handicapped in physical education. Figure 20 presents the dissemination flow chart.

The objectives of the Unit are to facilitate (a) school learning research, (b) replicable programs, and (c) equal opportunity for physical educational services for every handicapped child. In addition, the Field Research Service Staff is developing a plan for coordinating working efforts with the Learning Resource Network and National Needs Assessment of the Bureau of Education for the Handicapped, United States Office of Education.

In all the activities, the Unit will incorporate the cadre of experts - including field test teachers and curriculum resource consultants; students from the preservice education program implementing I CAN and developing teacher competencies for successful individualized instruction; and the Project Staff.

Research Service Integration

In order to effectively improve programs for the handicapped, programmatic research and development centers in physical education and recreation are essential for institutionalizing change. By working directly with field programs, the Center can identify and institutionalize change efficiently. By providing direct service to school/agency programs for the handicapped, the Center can facilitate changes in developing and evaluating program materials and offering preservice and inservice preparation. Through service-oriented research, accountable, replicable programs can be developed and disseminated to all agencies and institutions involved in programs for the handicapped. The evaluation of the three primary functions of an institute in Higher Education through a Research-Service oriented unit is depicted in Figure 21.

Effects of Research on Service

Research within a programmatic effort as described above can insure that effective, accountable and replicable programs are developed for the handicapped. Services for the handicapped will be improved more efficiently by service-oriented research which can be quickly translated into changes in program development and inservice and preservice training programs. Involvement of local personnel in the research effort provides an atmosphere conducive to change facilitating program improvement. Service-oriented research should

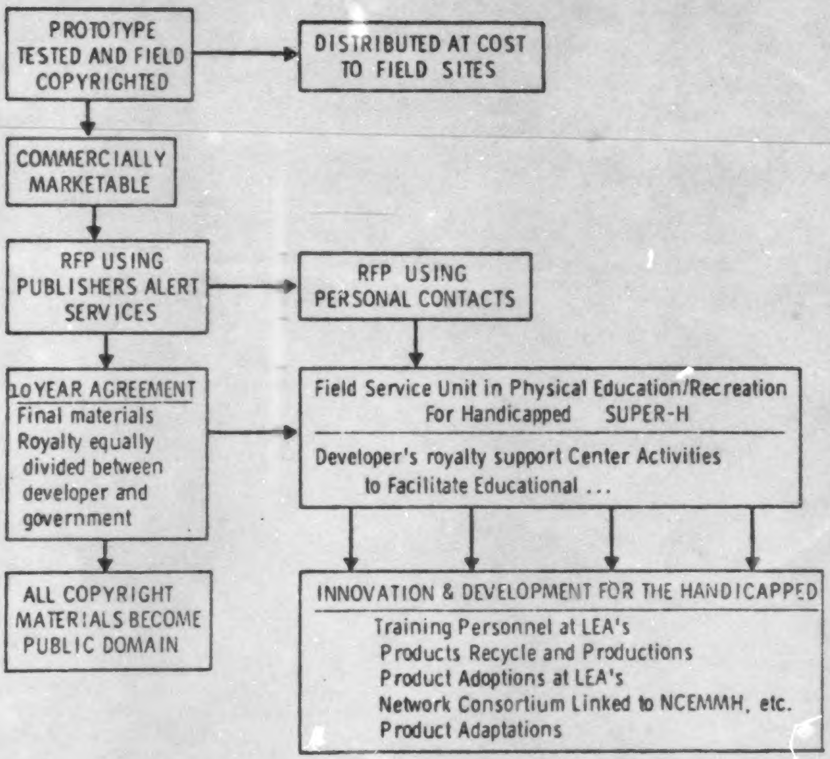

PROTOTYPE TESTED AND FIELD COPYRIGHTED
DISTRIBUTED AT COST TO FIELD SITES
COMMERCIALLY MARKETABLE
RFP USING PUBLISHERS ALERT SERVICES
RFP USING PERSONAL CONTACTS
10 YEAR AGREEMENT
Final materials
Royalty equally divided between developer and government
Field Service Unit in Physical Education/Recreation For Handicapped SUPER-H
Developer's royalty support Center Activities to Facilitate Educational ...
ALL COPYRIGHT MATERIALS BECOME PUBLIC DOMAIN
INNOVATION & DEVELOPMENT FOR THE HANDICAPPED
Training Personnel at LEA's
Products Recycle and Productions
Product Adoptions at LEA's
Network Consortium Linked to NCEMMH, etc.
Product Adaptations

Figure 20. I CAN project dissemination flow chart

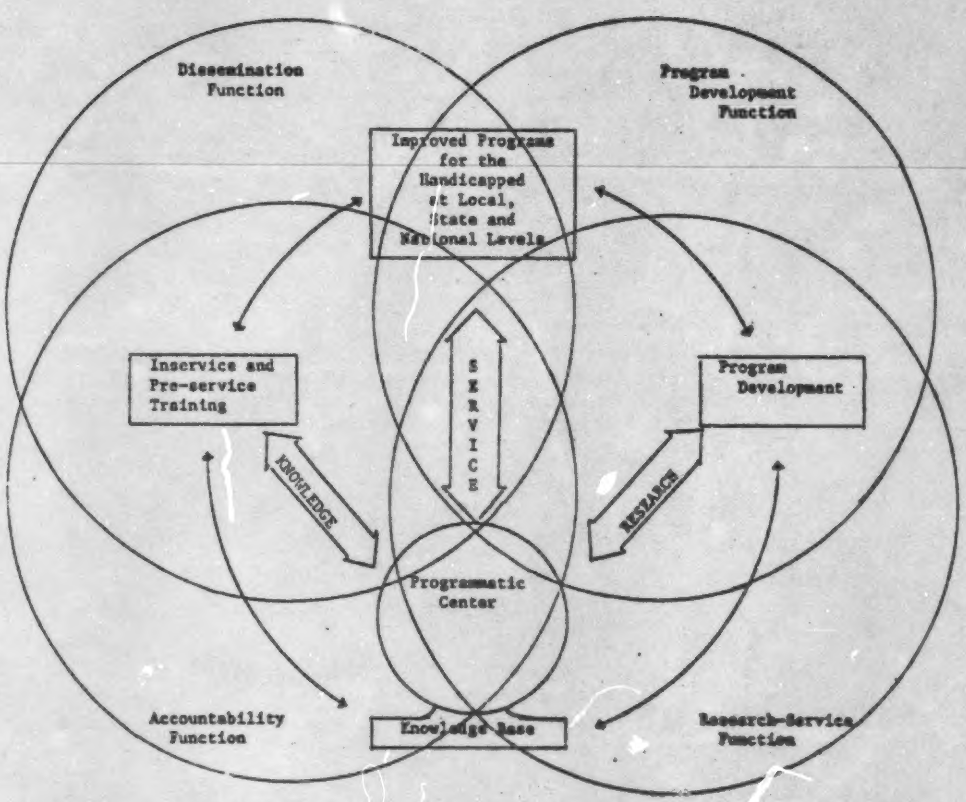

Dissemination Function
Program Development Function
Improved Programs for the Handicapped at Local, State and National Levels
Inservice and Pre-service Training
SERVICE
Program Development
KNOWLEDGE
RESEARCH
Programmatic Center
Accountability Function
Knowledge Base
Research-Service Function

Figure 21. Functions of a service-oriented programmatic research and development center

provide some direct answers to the actual problems encountered in programs for the handicapped, and eliminate the typically lone-time span between research and practice.

Effects of Service Orientation on Research

The existence of a close connection between service and research insures that research is fundamentally relevant to current problems. Many questions raised by practitioners in the field can directly generate research problems.

An on-going programmatic development effort also provides for more completely describable programs, and the procedures needed to monitor program implementation. In addition, a whole team of trained professionals, from the center staff to individual teachers, are available for research efforts. This results in economical research by eliminating large separate research teams along with the time spent orienting such teams to specific programs under investigation.

The dissemination of research results is facilitated by the involvement of personnel at all levels and within a variety of settings. Thus, research results are more efficiently translated into program improvements. In a very real sense the Unit operation is similar to a county extension agent model in agriculture.

Services Offered

The services offered by I CAN involve the following activities:

Instructional materials development. Establishing relevant goals/objectives; designing assessment prescription, delivery, and evaluation systems; identifying appropriate facilities/equipment and learning resource materials.

Inservice training. Programs for specialists; specialists/teacher combinations; classroom teachers; administrators; supervisors; aides; parents.

Accountability. Implementation and interpretation; constructing test forms and assessment instruments; certifying performance objectives; identifying effective delivery systems; measuring pupil achievement; program evaluation and recommendations for improvement.

Remedial and special training programs. Diagnostic and prescriptive; handbooks for teachers, parents or aides.

Services are offered through a direct service model at either the request site, the University, or other suitable location. These services may take one of the following forms:

Clinic. Two or more MSU staff members are provided for discussion of specific problems.

Demonstration. Presentation by MSU staff members, using materials and/or people to illustrate a specific method or process.

Symposium. Structured presentation of papers relating to a single topic, followed by a question-and-answer period.

Special Programs. Informing and educating groups concerned with decision-making or problem-solving techniques.

The service is nonprofit and guided by mutually developed contracts. The Field Research Service Unit is a way to extend the University's service commitment toward helping people attain specific goals related to community needs.

SECTION II

EVALUATION REPORT

CHAPTER I

INTRODUCTION

This report documents the results of the formative evaluation of the I CAN primary skills modules. Although it alludes to the evaluation of both the I CAN prototype draft (Phase I evaluation) and the subsequent field test draft (Phase II evaluation), its major intent is to report the results of the 1973-74 field test.[1]

The report is divided into three chapters: Introduction, Program Specification and Evaluative Context, and Results. The Introduction specifies the purpose of the evaluation and the evaluative approach. The second chapter describes the program approach, program characteristics, evaluative context, learner characteristics, teacher characteristics and implementation procedures. The third chapter, Program Results, describes the direct results of the instruction in terms of student changes and recommended revisions.

The contents of this report reflect the data obtained as a result of the implementation of the Formative Evaluation Plan, Working Paper #9 of the Programmatic Research Project, Michigan State University, Department of HPR.[2]

Purpose of the Evaluation

The primary purpose of the I CAN evaluation was to generate information relevant to deciding what aspects of the I CAN instructional system needed to be revised. The primary audience for the evaluation was, therefore, the development staff of the I CAN project. Although information regarding positive aspects of I CAN was expected, the focus of the evaluation was to identify deficiencies in the program. Deficiencies in form, substance, format and implementation procedures were solicited from field test teachers. In instances where deficiencies were noted, one or more alternative suggestions with a brief rationale supporting why they should be considered improvements were requested.

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[1] Phase I evaluation refers to small scale (1-3 teachers) try-outs of selected aspects of the newly developed prototype materials. Phase II evaluation refers to a field test of the total instructional system with a more representative sample of teachers and locales.

[2] This paper is available on request from Dr. Janet A. Wessel, Director, Field Service Unit in Physical Education for the Handicapped, Michigan State University, Department of Health, Physical Education and Recreation, East Lansing, Michigan, 48824.

The primary purpose of the evaluation of I CAN has been achieved; i.e., systematic revision of the prototype and field test drafts of I CAN have been completed. However, since it is not clear how much further evaluation of I CAN will occur prior to dissemination, it was felt that a rather explicit description of what has occurred to date should be available to those who desire such information. Such audiences are, however, considered secondary and would include funding agents, potential users, other curriculum developers, evaluators, special educators, and physical educators. The utility of this information could include:

1. Describing the implementation of a formative evaluation methodology instituted on a set of resource materials.
2. Describing the effects of the field test of I CAN in terms of usability and effect.
3. Providing a base from which further evaluation of I CAN may be designed.

Evaluative Approach

The I CAN evaluation was considered one component of the project's curriculum development model. This model is generally portrayed in Figure 22 below and exemplifies the close relationship maintained between evaluation and development in this project.

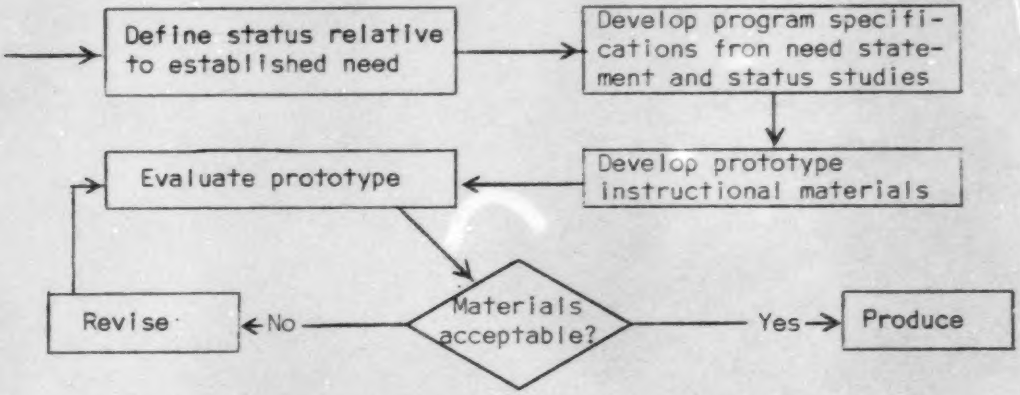

Define status relative to established need
Develop program specifications fron need statement and status studies
Develop prototype instructional materials
Evaluate prototype
Materials acceptable?
No
Revise
Yes
Produce

Figure 22. I CAN curriculum development model

The question of whether the evaluator should be independent from the development team has been a debated issue in educational evaluation for several years. Recent thinking appears to support a cooperative effort between developers and evaluators when engaged in the process of formative evaluation (Butman, 1974; Baker, 1974). The cooperative approach blends the developer's intimate knowledge of the intents and processes of the curriculum product with the evaluator's knowledge of the goals and roles of evaluation. The resultant dual sensitization process enables the formulation of an evaluative purpose statement which is in line with what is needed as well as what can reasonably be expected to occur. This was the approach used in developing the evaluative approach for I CAN.

The formative evaluation of I CAN was divided into Phase I and II. Phase I provided small scale tests of initial I CAN prototype materials while Phase II involved a broader field test of I CAN.

Phase I evaluation can be characterized by the terms "small sample-cyclical investigations". It was designed to facilitate user-evaluator-developer interaction centering on the feasibility of the I CAN prototype materials. The persons involved in this phase of evaluation activity included two teachers, I CAN developers and I CAN evaluators. The interaction occurred within the context of debriefing sessions, structured through teacher feedback which cited problem areas of the prototype. Major areas of interest were the form, substance, sequence, implementation processes and needs for Phase II evaluation.

Phase II evaluation was a natural extension of Phase I. Assuming that major flaws in form and substance were identified and remediated prior to Phase II, the scope of Phase II was enlarged to include a more representative group of students and teachers. The purpose of this phase was, however, the same as Phase I: to generate relevant data with which the developers of I CAN could systematically revise the instructional materials.

Phase I evaluation (as described in Working Paper #9, Formative Evaluation of I CAN) was nearly synonymous with the development effort. Since it was conducted to assist the systematic revision of the I CAN prototype materials into a draft which would be more generally usable (field test copy) and is so far removed from the current draft of I CAN, it will not be included in a formal evaluative report.

To guide Phase II, the following evaluative questions were posed:

1. Are the objectives of the program technically acceptable?
2. Are the objectives of the program appropriate?
3. Was the program implemented as intended?
4. What are the characteristics of the population which may be related to student success?
5. Are the I CAN Instructional Materials feasible as a means of effecting desirable student change?
6. What are the teachers' reactions to the program?
7. What are the student's reactions to the program?
8. What are the unanticipated consequences of the program?

The procedures utilized to investigate each question were specified in the evaluation plan and included: data source, instrumentation, data, treatment, decision criteria and anticipated recommendations.

CHAPTER II

PROGRAM SPECIFICATION AND EVALUATIVE CONTEXT

Program Approach

The basic need for physical activity is at least as important, if not more so, for the TMI youngster as for the "normal" child, especially since many mentally impaired children lack the participation in vigorous activity that is so vital to healthy development. Because they are deficient in one or more areas of fundamental motor skills, the opportunity for participation in many sports and leisure activities is often denied TMI children. Yet the wise and constructive use of leisure time is an accepted value of our society.

It is clear that there is a relationship between the performance of certain fundamental motor skills and successful participation in a wide range of leisure activities, from sports and games to dancing. However, skilled performance of any movement does not result from mere participation, but rather, requires guided instruction within a series of learning experiences designed to facilitate a specified competency level. A curriculum in physical education for the mentally impaired, then, should be directly concerned with systematically developing those primary motor skills which are essential for maximizing growth, development and socio-leisure participation.

Factors influencing physical education programs vary greatly from one school or community to another in terms of facilities and equipment available, teacher and student types, educational and community priorities and objectives, even family life styles. The presence of such differences invalidates any arbitrary specification of the content of a physical education program and the resultant grouping of that content into a set of instructional lessons. It does not, however, negate the need for replicable instructional programs; on the contrary, it necessitates the development of instructional materials which are adaptable to any situation, and which provide a systematic model for the establishment of relevant local programs.

Based on this rationale, it was the belief of the project staff that instructional materials in physical education should be adaptable, diagnostic-prescriptive, replicable and effective in terms of student achievement. Such an instructional system must be flexible enough that it can be incorporated into existing programs in accordance with the unique needs of the students, the school and the community. It should be usable by all teacher types constituting the current delivery system for services to TMI students and should provide for maximizing associated learnings of the classroom.

In order to meet these criteria, it is necessary to build into the physical education program a highly individualized approach which allows each learner to enter at a level commensurate with his or her background and progress at the rate of his or her own learning abilities. Desired outcomes must be specified and measurable, providing for continuous assessment of student progress and program effectiveness. Most importantly, goals and objectives cannot be imposed upon the program, but must be derived through the systematic planning process for each local program. These were the major characteristics influencing the development of the I CAN instructional system.

Program Characteristics

Content of the I CAN Curriculum

The I CAN Curriculum, recognizing that physical education should involve the education of the whole person, conceptually, includes skills in the cognitive and affective areas as well as psychomotor areas. Cognitive understandings regarding the importance of certain kinds and amounts of activity are necessary for the healthy management of daily living. Affective learnings in terms of such social skills as competition, cooperation, leadership, etc., have proven invaluable in improving interpersonal relations and vocational adjustment. Skills in both of these realms can be readily incorporated into a systematic physical activity program which abounds with opportunities for reinforcing a wide range of concepts. However, the time required to develop the I CAN Curriculum delimited its content to the primary psychomotor skills. Figure 23 portrays the content included in the I CAN Curriculum.

Review of the Terminal Performance Objectives under each module reveals that the majority of I CAN content falls into the psychomotor domain. Notable exceptions, however, include those Terminal Performance Objectives in the Body Awareness module which deal with many cognitive concepts.

Structure of the I CAN Curriculum

The instruction and evaluation of each specific skill listed in Figure 23 is related to the achievement of a behaviorally stated terminal performance objective (TPO). A TPO is a statement of functional performance for each skill. TPOs are subdivided into a number of enabling objectives (EO), which describe the sequential learning experiences required for the student to reach functional performance of a TPO. The enabling objectives represent skill levels which range from near zero to the functional competence criterion. The final enabling objective, then, acts as the operational definition of competence suggested by the TPO. An example TPO with its enabling objectives is included in Figure 24.

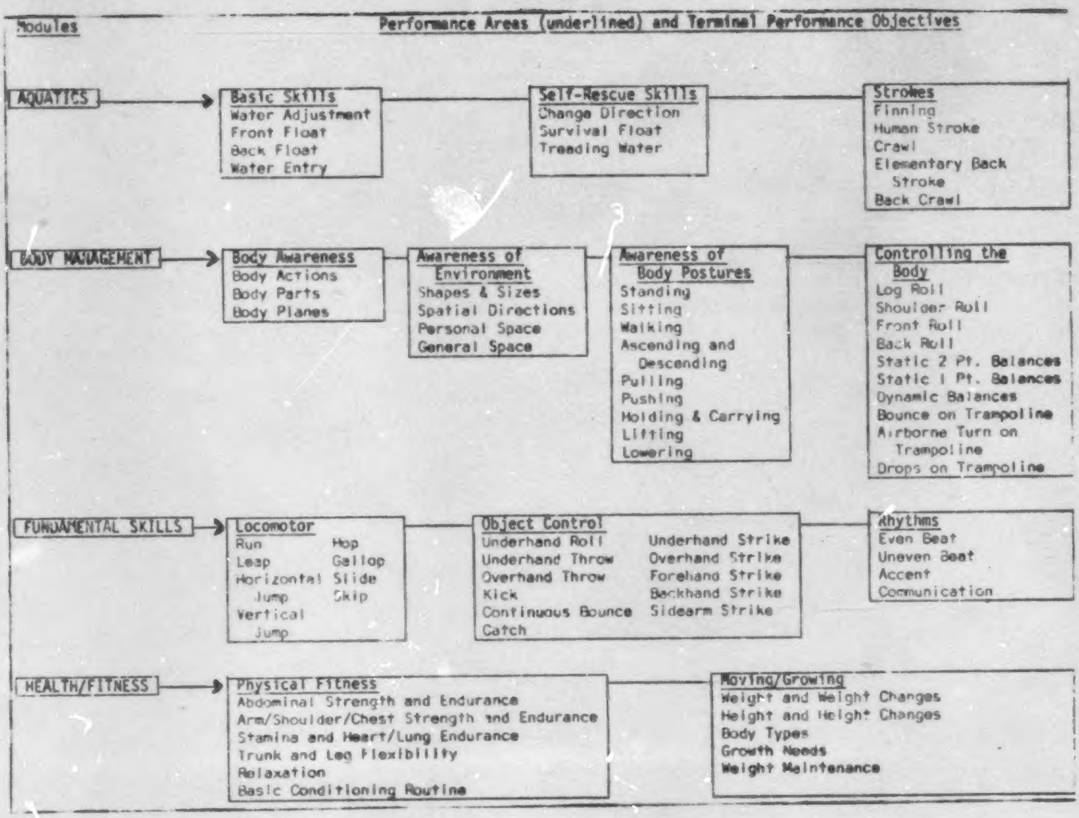

Modules
Performance Areas (underlined) and Terminal Performance Objectives
AQUATICS
Basic Skills
Water Adjustment
Front Float
Back Float
Water Entry
Self-Rescue Skills
Change Direction
Survival Float
Treading Water
Strokes
Finning
Human Stroke
Crawl
Elementary Back Stroke
Back Crawl
BODY MANAGEMENT
Body Awareness
Body Actions
Body Parts
Body Planes
Awareness of Environment
Shapes & Sizes
Spatial Directions
Personal Space
General Space
Awareness of Body Postures
Standing
Sitting
Walking
Ascending and Descending
Pulling
Pushing
Holding & Carrying
Lifting
Lowering
Controlling the Body
Log Roll
Shoulder Roll
Front Roll
Back Roll
Static 2 Pt. Balances
Static 1 Pt. Balances
Dynamic Balances
Bounce on Trampoline
Airborne Turn on Trampoline
Drops on Trampoline
FUNDAMENTAL SKILLS
Locomotor
Run
Leap
Horizontal Jump
Vertical Jump
Hop
Gallop
Slide
Skip
Object Control
Underhand Roll
Underhand Throw
Overhand Throw
Kick
Continuous Bounce
Catch
Underhand Strike
Overhand Strike
Forehand Strike
Backhand Strike
Sidearm Strike
Rhythms
Even Beat
Uneven Beat
Accent
Communication
HEALTH/FITNESS
Physical Fitness
Abdominal Strength and Endurance
Arm/Shoulder/Chest Strength and Endurance
Stamina and Heart/Lung Endurance
Trunk and Leg Flexibility
Relaxation
Basic Conditioning Routine
Moving/Growing
Weight and Weight Changes
Height and Height Changes
Body Types
Growth Needs
Weight Maintenance

Figure 23. Content of the I CAN primary skills modules
(1973-74 field test)

TPO: To demonstrate a functional underhand roll.

EO 1. To demonstrate a mature underhand roll.

Given a verbal request and a demonstration, the student can roll a tennis ball 2 out of 3 times in a manner characterized by:

a. a full pendular arm motion under the shoulder
b. a release close to the floor with a bend at the knees and at the hips
c. a stride forward with the foot opposite the throwing arm
d. eyes focused on target; follow through well beyond ball release.

TPO: To demonstrate an underhand roll with accuracy.

EO 2. To demonstrate an underhand roll with accuracy.

Given a verbal request and a demonstration, the student can demonstrate an underhand roll with a mature pattern, 2 out of 3 times by rolling a 3" to 8" diameter ball to targets 3 feet wide placed at distances of 10, 30 and 50 feet, in a manner characterized by:

a. lengthening backswing and forward stride with each successive distance
b. approach is in a straight line, body remains erect.

Figure 24. Example terminal performance objective (TPO) and enabling objective (EO) (1973-74 field test edition).

Enabling Objectives

Each EO incorporates a description of the behavior expected of the student after instruction. As such, each EO contains the following components:

1. the "givens" or conditions under which the behavior will be demonstrated;
2. the observable performance by the student;
3. the standard or minimal level of acceptable performance;

4. a stability ratio (where appropriate) indicating the number of opportunities to be given and the number of successes required.

In order to provide an accurate description of a behavior, it is necessary in some cases to analyze the behavior into its discrete components. In the I CAN program these are called focal points. Observation of behavior in terms of these finite units allows for precise evaluation of skill performance and provides a definitive base for planning instruction.

Since there is no evidence to suggest a preferred interskill sequence for teaching fundamental motor skills, none is implied in the order in which the TPOs appear in any module. However, within the TPO, enabling objectives are sequenced (intraskill sequence) in the same general order for each skill. In going through the EO sequence, the learner must demonstrate:

1. a qualitative pattern
2. a qualitative pattern plus quantative distance and/or accuracy components.

All of the objectives comprising I CAN were developed according to the guidelines specified in Working Paper 4, "The Development of Instructional Objectives" (see Appendix F), and reviewed by the evaluation staff using the criteria enumerated in Working Paper 5, "Statement of Technical Quality of Instructional Objectives" (see Appendix G, page 223.

Relevance of Objectives

The relevance of the objectives selected for inclusion in I CAN was logically supported by their enabling characteristics to the achievement of the commonly held goals of physical education. They are considered primary skills which establish the base for the development of skills required for various activities, sports and dances of the culture and are, therefore, inherently valuable.

Since I CAN was developed as a resource bank from which a teacher may select the objectives to be incorporated into a particular program, there was no emphasis placed on verification of the overall relevance of the objectives. Judgments of relevance are made by local implementors of the program in accordance with their values and standards regarding appropriate educational outcomes.

Implementation

As indicated in the previous section of this report relating the program approach upon which I CAN is based, a primary specification in the development of I CAN was flexibility. A set of pre-arranged sequential lessons was rejected in favor of a resource bank approach. The resource bank was to be supplemented with a systematic implementation mechanism which would guide an instructor in the selection of those objectives which would result in a program tailored to the local setting. This mechanism, in the form of teacher competencies necessary for the proper implementation of I CAN, form the Teacher's Guide.

In order to insure that I CAN was implemented as intended by the curriculum developers, systematic inservice training of teachers was necessary. To achieve that end, the I CAN project staff identified the teaching skills needed to implement the curriculum. These skills became the inservice goals and were stated as terminal performance objectives, as follows:

TPO 1. The teacher will be able to correctly use the organization, structure, and logic of the I CAN curriculum to develop a long-term plan.

TPO 2. The teacher will be able to assess student status as defined by the objectives of the I CAN curriculum.

TPO 3. The teacher will be able to prescribe daily lessons, based on need assessment, using Teaching Learning Activities and activity participation materials of the I CAN curriculum.

TPO 4. The teacher will be able to use alternate teaching strategies and organization procedures in teaching the I CAN materials.

TPO 5. The teacher will be able to evaluate and record pupil progress and determine whether to recycle or terminate instruction.

I CAN staff members then developed self-instructional activities for the TPOs. The activities were to parallel the format of the I CAN instructional materials where possible, and each included a post-test. Prototype materials thus developed were reviewed internally by other developers, tried out on a single subject and modified before being incorporated into the prototype Teacher's Guide.

Each field test teacher was assigned to complete all of the Teacher's Guide self-instructional modules as the first segment in their implementation training. A trained I CAN consultant then worked with each field test teacher, assessing his/her competency in implementing the curriculum and demonstrating correct procedures in the school setting as necessary. Teacher training procedures are more explicitly described under the title "Training Field Test Teachers" in Chapter II, page 74 and in Chapter III, page 92.

Evaluative Context

Population

Twenty centers for the trainable mentally impaired participated in the I CAN field test. All twenty centers were located in the lower peninsula of Michigan in a variety of geographic settings, both rural and urban. Urban areas ranged in population from 20,000 (Mt. Clemens) to 198,000 (Grand Rapids). Rural communities ranged in size from less than 1,000 (St. Helen) to 8,000 (Charlotte). Figure 25 shows the geographical area, site location and population estimate for the community surrounding each field test site.

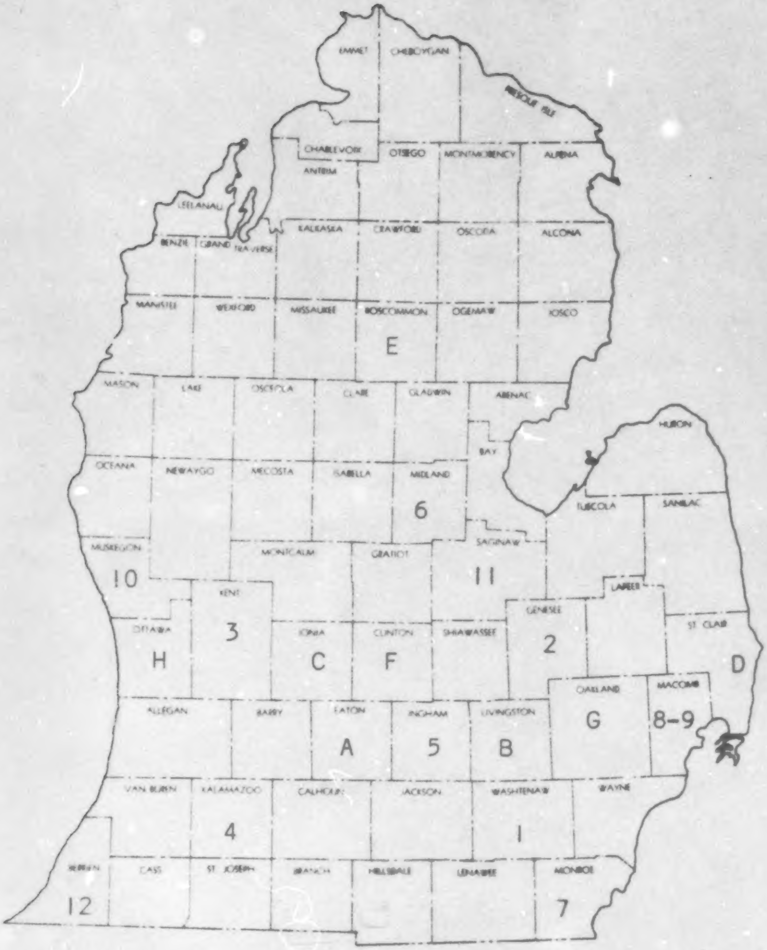
The education of TMI children in Michigan is the responsibility of the intermediate school districts which usually serve a county or multicounty area. Students are generally bussed from the surrounding area to the trainable centers. The students involved in the I CAN field test therefore represent a reasonably characteristic cross-section of the trainable population of lower Michigan.

Invitations to participate in a field test of the I CAN materials were mailed to directors of special education at each intermediate school district. A majority of the trainable centers contacted responded with a request to participate in the field test. Most of these centers, however, were staffed with physical education specialists. In order to obtain a balance between physical education specialists and classroom teachers, Fred Chappell, consultant for trainable programs, Michigan Department of Education, was asked to identify trainable programs in which the physical education was taught by classroom teachers. He indicated that in the Livingston and Clinton County Intermediate School Districts, classroom teachers were responsible for physical education. Upon contact, these two centers agreed to participate, providing a teacher sample of 13 physical education specialists and 13 classroom teachers.

Of the 24 TMI centers contacted, 20 requested to participate in the I CAN field test. Each field test site signed the I CAN "Field Test Participation Agreement" form (see Appendix H, page 225), explaining the mutual agreements and responsibilities between the field test sites and the I CAN project.

The facilities and equipment available at the TMI centers were not factors influencing the selection of field test sites, i.e., the presence of a gymnasium and/or any specific physical education equipment was not a prerequisite for field test participation. However, such factors were important considerations in the selection of objectives to be included in the instructional program for each center.

An important consideration in inviting centers to participate in the field test was the establishment of a positive tie between the university and the public schools. Therefore, the position taken by the I CAN project was that a program had been developed which was of


EMMET
CHEBOYGAN
PRESQUE ISLE
CHARLEVOIX
OTSEGO
MONTMORENCY
ALPENA
ANTRIM
LEELANAU
BENZIE
GRAND TRAVERSE
KALKASKA
CRAWFORD
OSCODA
ALCONA
MANISTEE
WEXFORD
MISSAUKEE
ROSCOMMON
OGEMAW
IOSCO
E
MASON
LAKE
OSCEOLA
CLARE
GLADWIN
ARENAC
HURON
BAY
OCEANA
NEWAYGO
MECOSTA
ISABELLA
MIDLAND
6
TUSCOLA
SANILAC
MUSKEGON
10
MONTCALM
GRATIOT
SAGINAW
11
LAPEER
KENT
3
OTTAWA
H
IONIA
C
CLINTON
F
SHIAWASSEE
GENESEE
2
ST CLAIR
D
OAKLAND
MACOMB
G
8-9
ALLEGAN
BARRY
EATON
A
INGHAM
5
LIVINGSTON
B
VAN BUREN
KALAMAZOO
4
CALHOUN
JACKSON
WASHTENAW
1
WAYNE
BERRIEN
12
CASS
ST. JOSEPH
BRANCH
HILLSDALE
LENAWEE
MONROE
7

Urban Sites

1.	Ann Arbor	100,000
2.	Flint	193,000
3.	Grand Rapids	198,000
4.	Kalamazoo	86,000
5.	Lansing	131,000
6.	Midland	35,000
7.	Monroe	23,000
8. 9.	Mount Clemens	20,000
10.	Muskegon	44,000
11.	Saginaw	91,000
12.	St. Joseph	11,000

Rural Sites

A.	Charlotte	8,000
B.	Howell	5,000
C.	Ionia	6,000
D.	Marysville	5,000
E.	St. Helen	1,000
F.	St. Johns	6,600
G.	Walled Lake	3,700
H.	Zeeland	4,734

Figure 25. Geographical area involved in the field test of I CAN

considerable potential value to the TMI centers. It was emphasized that field reactions were needed to evaluate the program. In return for that reaction, the I CAN staff would provide the instructional materials as well as consultant assistance on a regular basis for each participating center.

Training Field Test Teachers

Training the field test teachers to implement I CAN began in October 1973. At that time they were assigned to read the first objective of the Teacher's Guide, take the post-test for that objective, implement, and then undergo debriefing by the I CAN staff to determine and solve particular problems they experienced. During this initial training phase an I CAN consultant visited each field test site at least once every two weeks to help with implementation. The training continued in this fashion with the teacher going through the reading-post-test-implementation-debriefing procedure for all subsequent Teacher's Guide objectives. When it was determined that the teacher was capable of effectively implementing the program, consultant visits were reduced to one per month and eventually one every six weeks, with the consultant serving primarily to help work out specific implementation problems and to monitor the teacher's effectiveness. A workshop was conducted at Michigan State University in January 1974 for the field test teachers to discuss common problems and share concerns with each other and the I CAN staff. At all times during the field test a "hot line" telephone consultation service was available to field test teachers.

Learners

General characteristics of TMI youngsters are discussed in detail in Section I of this report. Figures 2 and 3, pages 7 and 8, summarize information about the behavioral characteristics of the TMI and implications for materials design.

Like all learners, the TMI are variable across students on any given characteristic or category. The degree to which this variability is linked to motor skill acquisition is largely unknown, yet speculation concerning such a relationship abounds (see pages 6 - 9 in Section I of this report). The information appearing in Part I suggests that certain student characteristics may relate to differential performance by TMI students on the attainment of selected performance capacities. To provide an opportunity to investigate these possible relationships, data was collected on several characteristics of the field test population.

Student characteristics data was to serve three purposes. First, it would provide a description of the field test population which would assist a reader of the evaluation report in judging the congruence between the field test population and some other population of TMI subjects. Second, the data would allow the evaluation staff to investigate differential student achievement for purposes of delimiting the reported effectiveness.

Third, the materials could be revised to expand their utility with identified subpopulations.

The data obtained included both general and teacher judgment information reported on a student data sheet included on pages 35-36 of the I CAN Evaluation Handbook for Field Test Teachers (see Appendix I). Table I provides a summary of the characteristics of students involved in the field test.

Based on the information reported in Table I concerning physical, social and cognitive characteristics of the TMI students sampled, it appears that the students participating in the field test of I CAN are similar in most respects to the general population of retarded students. In terms of demographic data, for example, the percentage of males and females was similar (male = 55%, female = 45%). The etiology and IQs of this population appear to be similar to the general population of TMIs. About 52% of the field test students had IQs ranging from 40 to 49, approximately the middle of the trainable range. In the category of disability type, about one-third (39%) were classified as "Down's Syndrome", while another third (34%) were "Brain Damaged". The remainder possessed various etiologies including hydrocephalia, epilepsy, etc. While most students were not taking drugs, about 18% received prescribed drugs regularly.

The age range for all subjects was 3 to 23 years, which is the general age range for students in trainable centers in Michigan. Although the program was designed for elementary age TMI students (5-14 years) and field tested with this intended population, small centers and local grouping practices result in a wider age range than is generally considered elementary age. It should be noted, however, that the bulk of the field test population (69%) was between 5 and 15 years of age.

The distribution of ethnic types in this population differs considerably from the general U.S. population. Approximately 95% of the field test population was "white", while only 5% was "black", "brown", or "other". This contrasts with ethnic figures in the total U.S. population in which black, brown, or other students account for a considerably higher percentage.

Teacher judgment of field test student health status was generally high, although the general population of retardates exhibits a high illness rate. About 76% of students were judged as being of "good" health and "high" vitality, while only 5% were of "poor" health. Teacher judgment of good health was not reflected, however, in student absenteeism (if, in fact, absenteeism is generally a result of illness). Approximately 36% of the students were absent more than two days per month, while 28% missed school an average of one day per month. Only 36% missed less than one day of school per month. A large majority of the field test students (91%) were relatively permanent, having lived in the same school district for more than one year.

Table 1. Characteristics of the Field Test Teachers

General

AGE					
3-5	6-8	9-11	12-14	15-17	18-23
12.1%	22.1%	19.7%	32.3%	9.6%	4.4%

N = 158

SEX	
Male	Female
55.3%	44.7%

N = 159

ETHNIC		
White	Black	Brown
94.7%	3.3%	2%

N = 152

	IQ	
30-39	40-49	50+
24%	52.1%	24%

N = 121

DRUGS	
Yes	No
17.6%	82.4%

N = 153

ABSENCE		
High	Mod.	Low
36.5%	27.6%	35.9%

N = 156

PERMANENCE	
< 1 Yr.	> 1 Yr.
9.1%	90.9%

N = 154

DISABILITY			
Down's	B. Damage	Other	?
34%	16.4%	10.7%	39%

N = 159

Teacher Judgments

PARTICIPATION		
High	Mod.	Low
57.7%	38%	4.2%

N = 142

SELF-PERCEPTION		
High	Mod.	Low
27.7%	45.3%	27%

N = 137

ATTITUDE		
High	Mod.	Low
69.7%	28.9%	1.4%

N = 142

EMOT. STABILITY		
High	Mod.	Low
43%	43.7%	13.4%

N = 142

MATH ABILITY		
High	Mod.	Low
28.2%	33/1%	38.7%

N = 124

VERBAL ABILITY		
High	Mod.	Low
31.4%	42.9%	25.6%

N = 156

SOCIAL ABILITY		
High	Mod.	Low
32.1%	55.8%	12.2%

N = 156

ATTENTIVENESS				
Very Good	Good	Mod.	Poor	Very Poor
17.3%	34.6%	29.5%	15.4%	3.2%

N = 156

SELF-HELP ABILITY				
Very Good	Good	Mod.	Poor	Very Poor
26.3%	42.3%	21.8%	7.7%	1.9%

N = 156

HEALTH		
High	Mod.	Low
76.1%	19%	4.9%

N = 142

When asked to compare their students to other TMIs of the same age, field test teacher judgment on such variables as attentiveness, self-help ability, social ability, activity interest, attitude, and emotional stability was high. On each of these variables, 82% to 99% of the students were judged as "moderate" or "high". No more than 20% were judged "low" on any one of these factors. Teacher judgments of their students' math ability, verbal ability, and self-perception of movement ability indicated that the population in this study was typical of a general population of TMIs. While most students fell in the "moderate" range on these abilities, a similar number fell in the high and low range (25 - 38%).

In summary, the background of the field test population appears very similar to the general TMI population, with the exception of the disproportionate ethnic distribution. Teachers judged their students to be average or above average in relation to the broader population of TMIs in the various categories of cognitive, social and affective characteristics.

Teachers

Background

Teachers involved in the field test of I CAN were of two major types: classroom teachers and physical education specialists. Classroom teachers are characterized by certification in special education but less than an undergraduate minor in physical education. Physical education specialists were certified special educators with a major or minor in physical education. In each case the teacher involved was responsible for the physical education of students assigned to his/her class(es). General demographic data relating to the field test teachers' educational backgrounds, teaching experience, etc. are summarized in Table 2 and delineated in detail in Appendix J, page 274.

As indicated in Table 2, the field test teachers brought quite a wide range of backgrounds to the field test, within the classifications of physical education specialists and classroom teachers. There were slightly more females (15) than males (11) and undergraduate majors were evenly divided between physical education and special education. All but one of the physical education specialists were undergraduate physical education majors with approval for special education. All of the classroom teachers were special education majors. A majority (75%) were young teachers between the ages of 20 and 30, and nine of 16 had less than three years teaching experience. Fourtenn of 16 had three years or less experience teaching physical education to TMI students.

Table 2. Characteristics of the Field Test Teachers*

TEACHER TYPE	N
Physical Education Specialist	13
Classroom	13

SEX	N
Male	11
Female	15

AGE	N
20-30	12
30-40	1
40+	3

YEARS OF COLLEGE EDUCATION	N
4 years	5
4 +	4

DATE LAST COLLEGE CLASS TAKEN	N
1972	4
1973	12

HIGHEST DEGREE OBTAINED	N
BA/BS	11
MA	5

UNDERGRADUATE MAJOR	N
Phys. Ed.	7
Special Ed.	8
Other	1

GRADUATE MAJOR	N
Phys. Ed.	2
Special Ed.	5
Physical Ed. for Handicapped	2

# COLLEGE COURSES IN SPECIAL ED.	N
1-4	3
6-8	2
18-20	2
$\overline{X}$ = 10.7	

# COLLEGE COURSES IN PHYS. ED. FOR HANDICAPPED	N
0	13
1-2	1
3-4	1
5	1

YEARS TEACHING P.E. TO TMI	N
0-1	9
2-3	5
4-5	1
6+	1

YEARS TEACHING EXPERIENCE	N
0-2	9
3-5	2
6-8	3
9-11	1
20+	1

*Incomplete data on 10 teachers

All field test teachers had at least four years of college education, most having had additional college training up to six years, for an average 4½ years of college. Five teachers had obtained master's degrees, while four others were enrolled in graduate programs. All had taken a college course within a year of the field test. Most of the teachers had twelve or more college courses in special education, but only three had taken any courses in physical education for the handicapped.

The procedure for selecting the field test teacher sample involved sending "invitations to participate" to directors of each Intermediate School District in Michigan.[1] Two districts were added to those responding initially in order to balance the sample between physical education specialists and classroom teachers. It was believed that this teacher sample was representative of teachers throughout the state who would use the I CAN curriculum, and that the children receiving their instruction would typify the population of TMI students for whom I CAN was designed.

General Expectations

In an attempt to reduce the variability associated with teachers of unknown quality, minimal teacher requirements were included as a condition of participation in the field test. Appendix I, page , includes the agreement form used for this purpose. The I CAN staff expected that agreement to the phrase "highly recommended" would produce a teacher group that was reasonably competent. As reported in the summary of the field test teachers' backgrounds, a majority of the teachers actually participating were young and relatively inexperienced, which was not entirely in keeping with this expectation. This did not seem to be a factor inhibiting any of the teachers' performance in implementing I CAN, however. Agreement to the other phrases of the agreement characterized by the terms "...willing to..." was intended to result in teachers who had considered the option to participate in the field test and had agreed of their own volition. Although this was true to a large degree it was later learned that as many as 30-40% of the field test teachers were assigned the responsibility after a commitment was made by an administrator. This did not result in serious problems, but in a few instances slowed the teacher orientation and training process. On subsequent forms of a similar type this problem has been avoided by providing a place for both the teacher's and administrator's signature.

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[1] The procedure is completely described on page 72 of this report.

Estimate of Teaching Ability

It is a generally accepted precept that a good teacher with deficient instructional materials can outperform a poor teacher with good materials. In the evaluution of I CAN it was recognized that teachers could be rated very high in their mechanical implementation of the diagnostic-prescriptive teaching model, and yet be considered quite deficient in terms of the personal-social interactions between teacher and students which are associated with "good teaching".

In an attempt to insure that this qualitative effort was included in the criteria for acceptable field test teachers, an instrument was developed to estimate the quality of teaching beyond the mechanical implementation of I CAN. The instrument required the field test consultants to rate the field test teachers they serviced on three categories:

1. ability to work with children
2. ability to communicate with students
3. ability to establish a learning climate.

The instrument and its development are described in detail in Appendix L, page 278, along with an index of its inter-rater reliability.

Table 3 portrays the degree to which the field test teachers were rated as effective teachers by the I CAN consultants. Ratings for all items in each category of teacher effectiveness were totaled and averaged, with the composite score representing the mean rating score for the entire rating instrument. The classifications of High, Moderate and Low were assigned to each score as follows:

High	3.75 +
Moderate	2.5 - 3.7
Low	1.0 - 2.4

Generally there wwere no apparent differences between classroom and physical education teachers in terms of their judged effectiveness. Consultants rated the two groups as similar in their ability to work with children. In the category of "communication with students", classroom teachers received more "high" and "moderate" ratings than did the physical education specialists, while physical education specialists were rated slightly better at establishing classroom climate. Overall composite scores for the two groups were almost identical. Thus, there was a large number of both types of teachers who were rated as moderately or highly effective by the I CAN consultants.

TABLE 3.--Consultant Ratings of Field Test Teacher Quality[1]

Teacher Type	Working with Children	Communication with Students	Establishing Classroom Climate	Composite Score
Physical Education Specialists:				
A[2]	5.0 (H)	4.8 (H)	4.9 (H)	4.9 (H)
B[2]	3.4 (M)	2.4 (L)	2.5 (M)	2.8 (M)
C	4.6 (H)	4.2 (H)	4.5 (H)	4.5 (H)
D	4.9 (H)	4.0 (H)	4.7 (H)	4.6 (H)
E	4.3 (H)	4.2 (H)	4.3 (H)	4.3 (H)
F[2]	3.2 (M)	2.8 (M)	2.9 (M)	3.0 (M)
G	3.1 (M)	2.6 (M)	3.0 (M)	3.0 (M)
H	4.1 (H)	3.0 (M)	3.8 (H)	3.6 (M)
I[2]				
J	4.3 (H)	4.4 (H)	4.8 (H)	4.6 (H)
K[3]	3.1 (M)	3.0 (M)	2.9 (M)	3.2 (M)
L	1.7 (L)	1.6 (L)	2.4 (L)	1.9 (L)
M	4.1 (H)	3.6 (M)	3.9 (H)	3.9 (H)
	$\bar{X}$ = 3.81	$\bar{X}$ = 3.38	$\bar{X}$ = 3.71	$\bar{X}$ = 3.69
Classroom Teachers:				
A	5.0 (H)	4.8 (H)	4.6 (H)	4.8 (H)
B	2.9 (M)	3.0 (M)	3.2 (M)	3.1 (M)
C	4.5 (H)	4.8 (H)	3.8 (H)	4.2 (H)
D	3.9 (H)	4.0 (H)	3.7 (M)	3.8 (H)
E	4.0 (H)	3.8 (H)	3.6 (M)	3.8 (H)
F[2]	4.0 (H)	3.3 (M)	3.6 (M)	3.7 (M)
G	4.2 (H)	4.2 (H)	4.0 (H)	4.1 (H)
H	4.8 (H)	5.0 (H)	4.8 (H)	4.9 (H)
I	3.7 (M)	3.6 (M)	3.5 (M)	3.6 (M)
J	3.1 (M)	3.2 (M)	3.2 (M)	3.2 (M)
K[2]	3.3 (M)	3.4 (M)	2.7 (M)	3.1 (M)
L	4.1 (H)	4.0 (H)	3.9 (H)	4.0 (H)
M	2.4 (L)	2.8 (M)	2.0 (L)	2.3 (L)
	$\bar{X}$ = 3.83	$\bar{X}$ = 3.83	$\bar{X}$ = 3.58	$\bar{X}$ = 3.73

H = High (3.75+)   M = Moderate (2.5-3.7)   L = Low (1.0-2.4)

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[1] Scores reported are mean rating values. Although the measure of central tendency for ordinal data should be the median, the mean value was considered an acceptable alternative for data such as these with a small range of values.

[2] Deleted from field test (deficient implementation of I CAN).

Implementation of I CAN

The data provided above provides insight regarding the interpersonal qualities of the teachers during their involvement in the field test. Of more immediate interest to the staff of I CAN was a description of teacher behavior during the course of the field test. Since knowledge of the congruence between what was intended to occur and what did occur was crucial to subsequent evaluative decisions, this evaluative question was directly posed in the Evaluation Plan. Specific data collected to describe the above congruence is, therefore, presented in Chapter III of this report.

CHAPTER III

PROGRAM RESULTS

Information included under the heading of Program Results is reported by evaluative question. Each question is formatted to include: expectations, observations, decision criteria and recommendations for each program element (TPO).

It should be noted that the data presented is not inclusive of every teacher included in the field test. Since I CAN was constructed as a resource bank of Terminal Performance Objectives, teachers selected TPOs in accordance with local program needs. As indicated in Tables 4 and 5, TPO selection varied across field test teachers. It would have been desirable to obtain data on every TPO taught by every teacher involved; however, it was clear that such a data collection scheme would place a huge quantitative burden on each field test teacher, therefore jeopardizing the quality of the data. Rather, each teacher was assigned 6 TPOs from those included in their long-term plans for reporting purposes.

Data relative to answering the questions posed in the formative evaluation plan was collected with the following instruments:

1) Teacher Feedback Form
2) Student Performance Score Sheet
3) Teacher's Monitor Form
4) Consultant Monitor Form
5) Student Data Sheet
6) I CAN Reaction Postcards

Each of the above instruments is included in the I CAN Evaluation Handbook.[1] A description of how they were to be completed and a completed example are included. The Handbook is attached as Appendix I, page 227.

Evaluative Questions and Specific Outcomes

Question #1: Are the objectives of the program technically acceptable?

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[1] The Consultant Monitor Form is not included in the Handbook but appears in Appendix L, page 278.

Table 4. Frequency of TPO Selection by the Field Test Teachers for the Module: Body Management

TPOs

	1 Body Actions	2 Body Parts	3 Body Areas	4 Shapes & Sizes	5 Direction	6 Space	7 Static Posture	8 Dynamic Posture	9 Pull-Push-Turn	10 Carrying	11 Rotation	12 Upright Balance	13 Inverted Balance	14 Dynamic Balance	15 Climbing
12		0													
11		0													
10		0													
9		X 0	0												
8		X 0	0				X								
7	X 0	X 0	0		X		X								
6	X 0	X 0	0		X	X	X								
5	X 0	X 0	X 0		X	X	X	X						0	
4	X 0	X 0	X 0		X	X	X	X				0		0	
3	X 0	X 0	X 0		X 0	X	X 0	X				X 0		0	
2	X 0	X 0	X 0	X	X 0	X	X 0	X			0	X 0		0	X
1	X 0	X 0	X 0	X 0	X 0	X	X 0	X 0	0		X 0	X 0		X 0	X 0
Total	7 7	9 12	5 9	2 1	7 3	6 0	8 3	5 1	0 1	0 0	1 2	3 4	0 0	1 5	2 1
Composite	14	21	14	3	10	6	11	6	1	0	3	7	0	6	3

X = Physical Education Specialists

0 = Classroom Teachers

Table 5. Frequency of TPO Selection by Field Test Teachers for the Module: Fundamental Skills

TPOs

Frequency	Run 1	Leap 2	Horizontal Jump 3	Vertical Jump 4	Hop 5	Gallop 6	Slide 7	Skip 8	Underhand Roll 9	Underhand Throw 10	Overhand Throw 11	Kick 12	Continuous Bounce 13	Catch 14	Underhand Strike 15	OverheadSStrike 16	Forehand Strike 17	Backhand Strike 18	Sidearm Strike 19	Even Beat 20	Uneven Beat 21	Accent and Phrasing 22	Imitation 23	Communication 24
13	X																							
12	X													O										
11	X													X O										
10	X O									O				X O										
9	X O								X	O	O			X O										
8	X O								X	O	O	X		X O						O				
7	X O				X		X		X	O	O	X		X O						O				
6	X O		X	X	X		X		X O	O	O	X		X O						O				
5	X O		X	X	X		X		X O	O	X O	X		X O						O			O	
4	X O		X O	X	X O	O	X	X	X O	X O	X O	X O	X	X O						O			O	
3	X O		X O	X	X O	O	X	X	X O	X O	X O	X O	X	X O						O			O	
2	X O		X O	X	X O	O	X	X	X O	X O	X O	X O	X	X O					X	O	O		X O	
1	X O	X	X O	X O	X O	X O	X	X O	X O	X O	X O	X O	X	X O	O				X	X O	O		X O	
Total	13 10	1 0	6 4	6 1	7 4	1 4	7 0	4 1	9 6	4 10	5 9	8 4	4 0	11 12	0 1	0 0	0 0	0 0	2 0	1 8	0 2	0 0	2 5	0 0
Composite	23	1	10	7	11	5	7	5	15	14	14	12	4	23	1	0	0	0	2	9	2	0	7	0

X = Physical Education Specialists

O = Classroom Teachers

The objectives of I CAN represent two levels, the terminal performance objective (TPO) and enabling objective (EO). The TPO is a description of the total content of an objective. EOs constitute the operationalization of that content into performance sequences. A typical example from the 1973-74 edition of I CAN is included in Figure 24, page 69.

Expectations: I CAN was developed with the attitude that the realization of learning can be best determined through observable performances. It was, therefore, mandatory that the enabling objectives of I CAN contain the elements attributed to good behavioral objectives. These elements, according to Mager (1962), Davis (1972) and other recent writers, must include conditions, behavior, and the performance standard. Guidelines for the development of instructional objectives were specified in Working Paper #4, "The Development of Instructional Objectives" (see Appendix F, page 219). It was expected, then, that all I CAN objectives would meet the criteria for good behavioral objectives before being released for field testing.

The procedure followed in developing objectives is schematically portrayed in Figure 26 below.

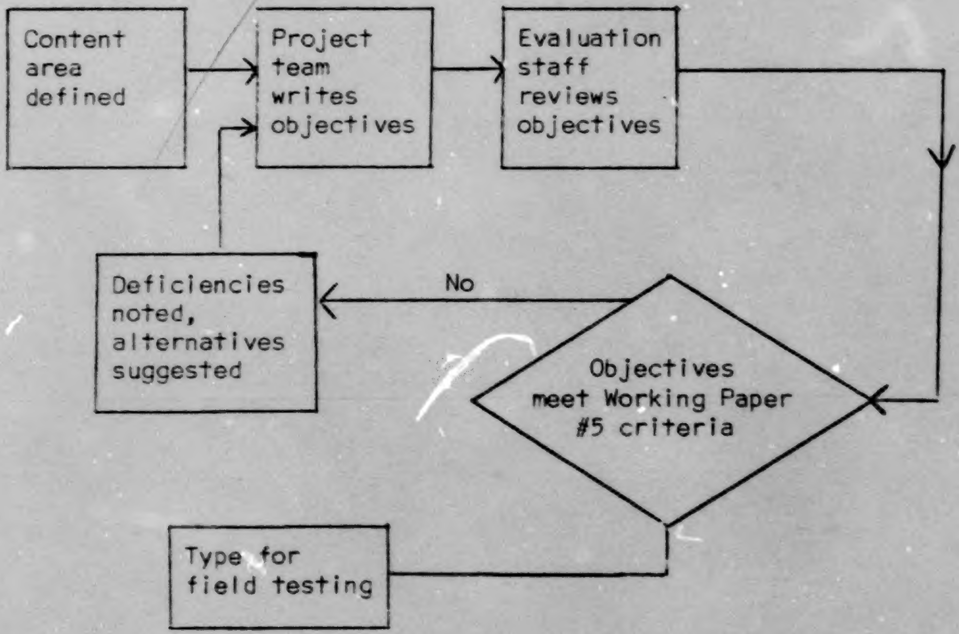
Content area defined
Project team writes objectives
Evaluation staff reviews objectives
Deficiencies noted, alternatives suggested
No
Objectives meet Working Paper #5 criteria
Type for field testing

Figure 26. Specification of I CAN performance objectives

As indicated in this diagram, a team of project members wrote the objectives based on a definition of the content area derived by the project staff. Once written, the objectives were reviewed by the evaluation staff to determine whether they met the criteria for technical quality. If they did, the objectives were typed and reproduced for field testing. If they did not, the evaluation staff noted deficiencies and made suggestions to the writing team as to appropriate changes. The objectives were then rewritten and channeled through the review and revision process until they met the criteria for good objectives.

Observations - Decision Criteria - Recommendations: Observations regarding the suitability or deficiency of objectives were not tallied and recorded for reporting. Rather, such observations were transmitted directly into the revision process. The decision criteria upon which recommendations regarding objectives were based were simply the criteria for good behavioral objectives specified in Working Paper #5, "Statement of Technical Quality of Instructional Objectives" (see Appendix G, page 223). The recommendations generated by the evaluation staff review were incorporated into revised objectives until they met the criteria specified.

Question #2: Are the objectives appropriate?

The objectives of the curriculum were appropriate to the degree that they were considered important, clearly stated and congruent with student ranges of ability. The expectations, observations, decision criteria and recommendations for revisions are presented below for each element of the appropriateness question.

Importance of the TPOs

Expectations: Since I CAN was to provide a resource bank of instructional materials for a variety of terminal performance objectives, only those TPOs which, in the judgment of the developers, have a logical base for inclusion in a physical education program are included in the modules. Proper implementation of the program involves selecting TPOs to establish a local program, therefore, not all TPOs were directly evaluated. Ratings of the importance of TPOs would, therefore, be expected to be high, in that teachers would not be expected to select a TPO of low priority for inclusion in their program plan. There was reason to believe, however, that some TPOs included in the local programs would be judged more important than others. Ratings of importance are included to display the strength of teacher feelings, generated while teaching the TPOs of the Body Management and Fundamental Skills field test modules.

Observations: The observations collected on the importance of the TPOs of the Body Management and Fundamental Skills modules support the expectation that TPOs incorporated in local programs would receive high ratings on importance. Teacher reactions to the importance of TPOs (on a scale including the choices: very important, important, OK, unimportant, and worthless) were recorded in only the top two response categories. Of the ten Body Management TPOs selected and rated the "very important" category was used for a majority (over 50%) of the responses for 3 TPOs and the "important" response category for 6 TPOs (one TPO was split at 50-50).

A summary of the data collected including the number of raters and the percent of responses in each category for each TPO is included in Table 6, "Teacher Judgments of TPO Importance for the Module: Body Management" (see Appendix M, page 284).

A similar pattern of responses was revealed for the TPOs of the Fundamental Skills Module. Using the same scale, all responses were found in the top three response categories. Of the fifteen TPOs evaluated, the "very important" category was used for the majority of responses (over 50%) for 9 TPOs, the "important" category for 5 and the "OK" category once. The number of raters and percent of responses in each response category is summarized in Table 7, "Teacher Judgments of TPO Importance for the Module: Fundamental Skills " (see Appendix M, page 285).

Decision Criteria: Objectives receiving ten percent or more of the adjusted scores in the "unimportant" or "worthless" categories were reviewed by three or more staff members. The review was to develop revision recommendations from the alternatives suggested by the field test teachers. Decisions regarding the acceptance of a suggested alternative as a recommendation for revision was to be based upon the strength of the alternative's supportive rationale as judged by three or more I CAN staff members. This process is schematically portrayed in Figure 27 below.

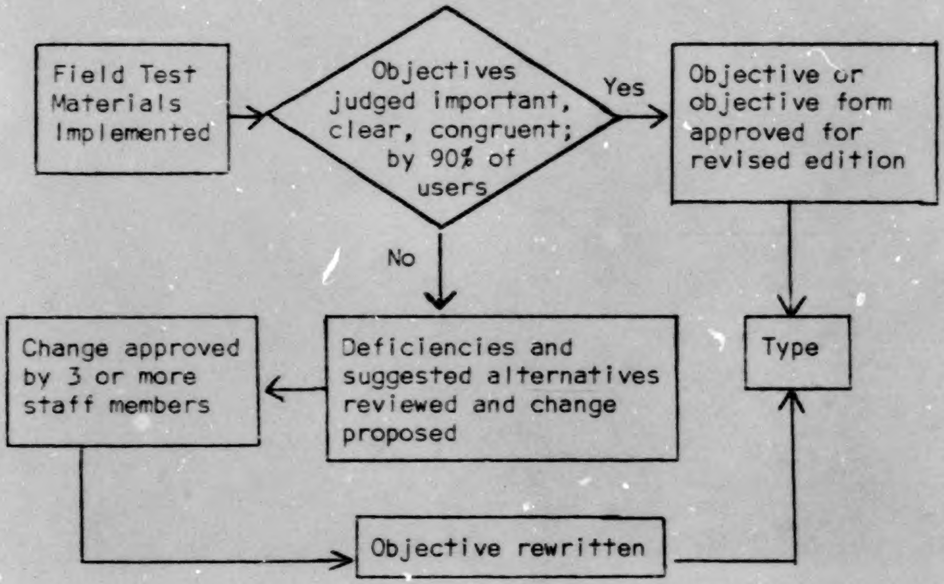
Field Test Materials Implemented
Objectives judged important, clear, congruent; by 90% of users
Yes
Objective or objective form approved for revised edition
No
Change approved by 3 or more staff members
Deficiencies and suggested alternatives reviewed and change proposed
Type
Objective rewritten

Figure 27. Modification of I CAN instructional objectives

Recommendations: The data obtained suggest that the TPOs selected, implemented and judged by the field test teachers are important content areas to include in primary TMI physical education programs. For those TPOs not incorporated into the programs of the field test teachers, judgments of importance are being reserved pending further information. The mere fact that some TPOs were consistently selected for inclusion in local programs while others were not causes one to speculate about the relative importance of module TPOs. Such a selection process could be used as support for deleting selected TPOs in future drafts of the module. This was considered but was rejected as a recommendation for several reasons:

1) There is logical support for including all of the modules' TPOs

2) In early drafts of instructional resource materials it was judged desirable to include too many, rather than too few, selection options

3) The program planning aspect of the Teacher's Guide, which guides the TPO selection process, was judged to be deficient

4) Since there is flexibility in determining local program content, inclusion of TPOs in the module does not mandate their inclusion in a local program

5) Many of the field test sites were just beginning to define a structured physical education program and their selection of TPOs reflect first priority TPOs. Non-selected TPOs were characterized in follow-up discussion as "not as important initially" rather than "unimportant"

The data portrayed in Tables 6 and 7, plus the above considerations, resulted in the recommendation that the content represented by the current TPOs be maintained in the revised edition of I CAN.

Clarity of the TPOs

Expectations: Since the objectives of I CAN are written in behavioral form according to specific technical criteria (conditions, behavior and standard), it was expected that they would be rated consistently high on clarity. Such a presumption is, however, based upon the quality of the descriptions of givens, behaviors and standards. The intent of soliciting teacher reaction to the clarity of the objectives was to identify deficiencies of qualitative nature.

Observations: Teacher judgments regarding the clarity of the objectives included in the Body Management and Fundamental Motor Skills modules support the general expectation of clarity. In rating the TPOs of the Body Management module as "clear" or "unclear" the clear category was used by the majority of teachers in every instance. For the EOs of the same module the "clear" category was used by the majority of teachers in 21 of 22 ratings. The specific information for each TPO and its EOs is included in Table 8, "Teacher Judgments of TPO Clarity for the Module: Body Management" (see Appendix M, page 286-287).

For the TPOs of the Fundamental Skills Module the rating of "clear" was used by the majority of raters for all fifteen TPOs rated. The majority of teachers also rated all of the twenty-eight EOs as "clear". The ratings are included in Table 9, "Teacher Judgments of TPO Clarity for the Module: Fundamental Skills" (see Appendix M, page 288-289).

Unlike the data on TPO importance, the information collected on clarity suggests that the form and writing of the instructional objectives is sound. This finding could reasonably be generalized to the unrated objectives. The fact that there are unrated objectives, however, reduces the opportunity to find deficiencies of a specific nature for the purposes of revision.

Decision Criteria: The same decision criteria utilized for revisions regarding the importance of instructional objectives was used for questions of objective "clarity". The 10% initial decision point and the use of three or more staff members to effect a change are described on page 88 under "Decision Criteria" and in Figure 27, also on page 88.

Recommendations: Review of the instructional objectives cited as deficient revealed several alternatives which were judged to be improvements over the field test draft. Although the suggestions were directed at a small number of objectives, the nature of their contant was generic to many of the other TPOs. Alternatives suggested were of the following type:

1) Adding a glossary for terms uncommon to teachers (particularly classroom)

2) Modification of the graphic representations of selected focal points[1]

3) Adding graphic representation of qualitative aspects of specific focal points

4) Adding a graphic series to illustrate a range of motion

5) Reduction of compound descriptors within one focal point

6) Rewriting a narrative description of an objective or objective focal point.

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[1] A focal point refers to an element of an enabling objective's performance description (see Figure 24, page 69, EO 1, focal point a).

Congruence of the TPO with Ranges of Student Ability

Expectations: The focal points for activity which describe the qualitative aspects of performance in each enabling objective were derived mainly from performance descriptions contained in the motor development and motor performance literature. Although a transformation of descriptive research literature into usable curriculum materials is difficult, the development staff felt that the field test copy of I CAN was quite accurate. This feeling was due to early trials of the materials during the Phase I evaluation which resulted in revisions of the materials prior to the 1973-74 field test.

Observations: Teacher ratings of congruence were collected in the manner described for objective importance and clarity. The rating scale used included the descriptors: high, moderate, low, inaccurate, add, and delete. The data obtained indicate that of 10 TPOs and 17 EOs of the Body Management Module, for a total of 62 focal points, 59 or 92% were considered congruent (i.e., received less than 10% of the responses in the low, inaccurate or delete categories). A summary of the data collected, including the number of raters and the percent of responses in each category, is included in Table 10, "Teacher Judgments of the TPO Congruence for the Module: Body Management" (see Appendix M, page 290-292).

The responses to "congruence" for the Fundamental Skills Module were similar to those received on the Body Management Module. Of 15 TPOs and 28 EOs, for a total of 97 focal points, 90 or 93% were considered congruent. Fifty-seven focal points (59% of the total number of focal points rated) contained over 50% of the responses in the "high" rating category while 31 (32% of the total number) contained over 50% of the responses in the "moderate" rating category. Although ratings in the "moderate" response category were not defined as a deficiency requiring a revision, it was of concern to the project staff and they were reviewed for potential revisions. The summary of data is included in Table 11, "Teacher Judgments of the TPO Congruence for the Module: Fundamental Skills" (see Appendix M, page 293-297).

Decision Criteria: As indicated above, deficiencies noted by the field test teachers in amounts exceeding 10% were prompts for further action. Review of the alternative suggestions offered by the field test teachers who noted deficiencies was conducted to generate revision suggestions. The decision to revise, i.e., accept a particular alternative, was made based on the strength of the supportive rationale judged by three I CAN staff members. This process is schematically portrayed in Figure 27, page 88.

Recommendations: Review of the specific objectives or objective focal points judged deficient by field test teachers generally triggered many improvement suggestions in the minds of the development staff. A common reaction was, "How could such a description of student behavior have appeared in the field test edition?". Developers also had the benefit of the alternatives suggested by the field test teachers. The deficiencies identified along with their suggested alternatives were quite specific to the objective or objective focal point evaluated. Most of the revisions made fell into two categories:

1) rewording the phrase which described the behavior

2) reducing the complexity of the behavior described.

The latter revision category resulted from several instances where two independent behaviors were lumped together into one focal point.

Question #3. Was the program implemented as intended?

A mandatory aspect of program evaluation is a description of the degree to which the program is implemented as intended. The congruence between what the developers of I CAN intended to occur and what actually did occur is information considered to be prerequisite to the generation of "results-based" recommendations for program improvement. Such information is also important as one considers the replicability of a defined program. To reproduce, at another point in time, positive instructional outcomes requires knowledge of the actual, rather than assumed, instructional transactions.

The data describing the degree to which I CAN was implemented as intended was important to generating revision recommendations for the Teacher's Guide as well as describing the implementation dimension of the program evaluation. In a separate but related effort data was collected from the field test teachers which included:

1) their reactions to the Teacher's Guide

2) their abilities subsequent to completing each section of the Teacher's Guide.

Both sets of data were written and are in the form of post-tests which each teacher was required to complete. These data in combination with observed teacher behavior in the actual implementation process form the base from which the Teacher's Guide was revised. Results of the development and evaluation of the Teacher's Guide are attached as Appendix N, page 318, and should be reviewed in conjunction with the information presented here.

Expectations: With the teacher selection criteria imposed to control for the quality of field test teachers (see Appendix H, page 225), the use of a competency-based Teacher's Guide[1] and the intervention of trained consultants, it was expected that I CAN would be implemented as intended by the field test teachers. Implementation was defined to include competence on every component of the following teacher behavior model:

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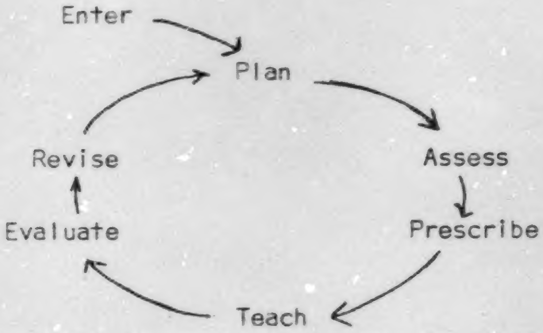
[1] The Guide is available on request from Dr. Janet A. Wessel, Director, Field Service Unit in Physical Education for the Handicapped, Michigan State University, Department of Health, Physical Education and Recreation, East Lansing, Michigan, 48824.



In order to implment I CAN correctly, the teacher must be able to:

1) Plan - correctly use the organizational structure and logic of the I CAN materials to develop a long-term plan.

2) Assess - determine student status as defined by the objectives of the I CAN curriculum.

3) Prescribe - develop daily lessons, based on need assessment, using the TLA's and activity participation materials of I CAN.

4) Teach - use alternative teaching strategies and organizational procedures in teaching the I CAN materials.

5) Evaluate - record pupil progress and determine whether to recycle or terminate instruction.

Observations: Each element of the teacher behavior model illustrated above was implemented to a degree by each field test teacher. The degree of implementation was determined by data obtained from both the field test teachers and the I CAN consultants. The "Teacher's Monitor Form" and the "Consultant Monitor Form" were the data collection instruments. The items and a facing page description of how to complete each item, as well as a completed form, are provided in Appendix I, page 227, for the teacher's form. The consultant form is very similar and is attached as Appendix L, page 278.

Review of the monitor forms shows that the items are directed toward estimates of all components of teacher behavior. Because some elements of teacher behavior were judged to be more important than others in the successful implementation of I CAN, a weighting scheme was used in scoring the monitor data. Review of the Consultant Monitor Form, Appendix L, page 278, will show (in the right margin) the weights assigned to each item. The numerical value given to each response option is also included in this sample form. Scoring the form was completed by multiplying the item weight by the assigned response value and totaling the product across all applicable items. This was done for all forms completed on and by the field test teachers.

Higher confidence was placed in the scores of a consultant than in the self-reported scores of the teachers. For this reason, an average score for each teacher as reported by I CAN consultants was assigned a weight which was double the weight of the teacher's self-report data. Consultant and teacher self-reported scores were then combined to establish a composite score for each teacher.

Composite scores were categorized as representing high, moderate, or low implementation of I CAN on the following basis:

High = .90 and above
Moderate = .73 - .89
Low = .50 - .72
Delete = .00 - .49

Table 12 on the following page depicts the teacher, consultant and composite results of estimates of field test teacher implementation of I CAN.

Little difference is noted between classroom teachers and physical education specialists concerning the degree to which they implemented I CAN as intended. Among classroom teachers, five were categorized as "high" on this factor, four "moderate", and three "low", with one deleted. Four physical educators scored "high", five were "moderate", and two "low", with two deletions. Mean ratings for the two groups were almost identical: the average self-reported ratings were .85 for classroom teachers and .84 for physical education specialists, while consultants gave a mean rating of .74 to the classroom teachers and .72 to the physical education specialists.

Decision Criteria: As indicated in the introduction to this question, correct implementation of the program was an important criterion for the inclusion of field test teachers and the data they reported in the evaluation. A composite implementation score of .50 or higher was therefore established as indicative of a minimal level of implementation. Eighty-eight percent of the field test teachers (23 of 26) met this criterion.

Recommendations: The primary recommendation generated by the teacher monitoring process was that any field test teachers with composite implementation scores below .50 can be deleted from the group used to

Table 12. Index of Field Test Teacher Implementation of I CAN

Teacher Type	Consultant Estimate		Teacher Estimate		Composite Score[1]	Rating[2]
	N	Average	N	Average		
Physical Education Specialists						
A	3	0	0	0	0	D
B	2	.35	6	.67	.45	D
C	3	.92	6	.84	.90	H
D	3	.92	7	.85	.90	H
E	2	.88	3	.84	.87	M
F	2	.50	4	.96	.65	L
G	2	.74	7	.86	.78	M
H	3	.90	0	0	.90	H
I	2	.77	5	0	.77	M
J	3	.94	5	.92	.93	H
K	2	.81	4	.84	.82	M
L	2	.74	6	1.0	.82	M
M	2	.80	5	.84	.82	M
Classroom Teachers						
A	4	.93	7	.91	.92	H
B	2	.68	6	.81	.72	L
C	3	.94	4	.85	.91	H
D	4	.82	9	.89	.84	M
E	4	.82	7	.89	.84	M
F	2	.37	3	.44	.39	D
G	3	.95	5	.93	.94	H
H	3	.96	4	.87	.92	H
I	2	.75	0		.75	M
J	2	.60	6	.89	.70	L
K	2	.32	2	.96	.52	D
L	5	.90	5	.94	.91	H
M	2	.69	2	.97	.73	M

1. Consultant Estimates are weighted 2:1 over Teacher Estimates
2. Based on Composite Scores where: H = 90 +, M = .73 to .89, Low = .50 to .72, Delete = .49 and under

determine the feasibility of I CAN to positively effect student performance (Evaluative Question #4).

As indicated previously, low scores on monitor form items specific to planning, assessment, prescription, teaching or evaluation precipitated further investigation into the reasons for low scores. The problem areas uncovered in monitoring became the agenda for subsequent consultant visits. Debriefing of consultants and teachers pointed out many deficiencies in the Teacher's Guide. The resultant data provided the base from which the Teacher's Guide was revised. Appendix N, page 318. provides further information regarding the development and evaluation of the Teacher's Guide.

Question #4. Are the I CAN materials feasible as a means of effecting desirable student change?

Selection

Eight I CAN TPOs were selected for testing the feasibility of the curriculum materials as effective physical education materials. The eight selected, all from the Fundamental Skills module, were: Run, Horizontal Jump, Hop, Underhand Roll, Underhand Throw, Overhand Throw, Kick and Catch. These objectives were investigated based upon their relatively high frequency of selection by field test teachers. Given the fact that the materials are designed as a resource bank rather than pre-established sequential lessons, the frequency with which these objectives were selected is an indication of their importance to TMI students as judged by the field test teachers. Additionally, the I CAN evaluation staff determined that teacher feedback on these particular objectives would be generic to all objectives of the curriculum.

Design

The design selected for investigating the effect of I CAN was the one-group, pretest-posttest design. Campbell and Stanley (1966) described this design with the following notation:

$$0_1 \; X \; 0_2$$

where 0_1 = pretest, X = treatment, and 0_2 = posttest. It is considered a pre-experimental design which is consistent with the nature of formative evaluation where the aim of the evaluation is revision. With such a pre-experimental design there is limited control over factors related to internal validity. Internal validity refers to the basic minimum of control without which any experiment is uninterpretable. External validity relates to the question of generalizability: "To what populations, settings, treatment variables and measurement variables can this effect be generalized?" (Campbell and Stanley, 1966). Although many potential sources of internal and external invalidity are associated with the one-group, pretest-posttest design, the circumstances of its use in this evaluation made it an appropriate selection. The rationale for using this design and an examination of threats to internal and external validity may be found in Appendix O, page 331.

Criterion Measure

The dependent measure used to determine changes in student performance was the I CAN Developmental Inventory, a criterion-referenced measurement device closely linked to the teaching of I CAN. The inventory includes both qualitative and quantitative standards which specify skilled performance levels beginning with immature patterns and proceeding through mature and functional capacities. The elements of skilled performance which comprise the inventory are called focal points for activity. Each focal point describes an important element of skilled performance which is specific to each enabling objective within a terminal performance objective, and serves to outline the content of the objective, structure the assessment - reassessment process, and focus the instructional activities. Since the focal points are closely related to a specific instructional activity, they are quite large when used as an index of performance improvement.[1] Data from the 1973-74 field test confirmed the fact that the focal points represented large increments. In response to the statement, "Please indicate below whether or not your class improved their performance in a way that was impossible to record on the Developmental Inventory - Student Performance Score Sheet", field test teachers answered "yes" as follows: run, 80%; underhand throw, 60%; overhand throw, 71%; and catch, 63%.[2] This feedback suggested that the Developmental Inventory should be modified to become more sensitive to student improvements. Such a change was in fact implemented in the revision of the materials.

The Inventory is unobstrusive in that the pretest (assessment) data were gathered through the implementation of an assessment activity for each terminal performance objective. Each assessment activity was instructional in nature and therefore the various performance levels were taught and assessed simultaneously. The inventory is conservative in that students who are near mastery on a given focal point may gain competence within the instructional aspect of the assessment lesson and thereby score higher than what would be expected in a more traditional pretest situation.

Posttesting (re-assessment) was continuous during the planned periods of instruction. As students met criteria, achievements were noted on the student performance score sheet. In instances where re-assessment data were not recorded during the course of instruction, the assessment activity was repeated to provide a context for the re-assessment process.

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[1] Changes in performance which occur prior to mature performance, such as the development stages identified by Seefeldt (1972), were not identified by this instrument.

[2] See Table 13, Appendix M, page 298 for the data obtained on the other fundamental skills.

Validity of the Instrument

The use of criterion-referenced measurement requires an alternative to the traditional concept of test content validity. Since the learning task is specified in observable terms and the criterion is an operational definition of what is meant by the objectives, the question "Does the test measure what it is supposed to measure?" clearly can be answered "yes".

The question of criterion-related validity was of concern in this investigation. Criterion-related validity is defined by Isaac (1971) as a substitute for the combination of older terms, "concurrent validity" and "predictive validity". It is computed by comparing the test scores (ratings) with an external standard which is considered to be a direct measure of the behavior or characteristic in question.

Before meaning can be attached to the reliability with which ratings of student performance are reported by field test teachers, it is important that the accuracy of these ratings be compared with an acceptable standard. For the purpose of describing the degree to which the developmental inventory maintains criterion-related validity, a coefficient of criterion-related validity[1] was calculated. The obtained coefficient provided a measure of the extent of association between expert ratings[2] and ratings of the field test teachers.

The procedure for making this determination involved viewing loop films of children engaged in the following fundamental motor skills: run, underhand roll, overhand throw and catch. The performances projected within each TPO were randomly selected from films of elementary TMI students who represented the stages of development characteristic of children as they move toward mature performance (Seefeldt, 1972). Teachers rated the filmed performers using the I CAN Developmental Inventory to assess the focal points characteristic of those skills. Subsequent to the rating procedure, the inventories were compared to the criterion scores established by experts. The value computed to characterize the relationship between teacher ratings and the acceptable standard provided for a range of values from 0 to 1.0. The criterion-related validity coefficients obtained are presented in Table 14 by skill and teacher type.

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[1] The coefficient of criterion-related validity is a percent correct score calculated by using the formula PC = R/N, where PC = the percent correct, R = the number of correct responses (as judged by their agreement with expert ratings on the focal points of the developmental inventory) and N = the total number of possible responses.

[2] The standard to which the teacher ratings were compared reflected perfect agreement of four I CAN staff members on student performance of each specific focal point.

Reliability of the Instrument

The reliability of the I CAN Development Inventory was calculated from the data collected during the process of establishing criterion-related validity.

The process of estimating test reliabilities by correlating two measures is well known. When an investigator is dealing with performance ratings, it is characteristic to have more than two sets of scores available. In this situation, Ebel (1951) suggests that it is desirable to establish an index of their agreement with each other.

Table 14. Criterion-Related Validity of the Criterion Measure

	Skill			
Teacher Type	Run	Underhand roll	Overhand throw	Catch
P.E.				
A	.63	1.0	.80	.83
B	.75	.88	.90	.83
C	.88	.75	-	-
D	-[a]	.75	-	1.0
E	.88	.75	-	.67
F	-	-	.80	-
G	.38	.88	.60	.67
CLRM.				
A	1.0	.75	.80	.67
B	-	1.0	.90	-
C	-	-	1.0	.67
D	1.0	-	-	1.0
E	.88	-	.80	1.0
F	1.0	.88	-	.83

[a] Skill was not selected by the field test teacher for instructional treatment.

Using Ebel's concept of estimating the degree of agreement among raters as an index of inter-rater reliability, the following simple ratio was selected. The procedure involved calculating a ratio of A=1-B/C, where A = inter-rater reliability, B = smallest number of agreement ratings, and C = largest number of agreement ratings. Estimates of this type may range in value from 0 to 1.0.

The decision to use this index of inter-rater reliability was based on the information that the following components are primarily responsible for inconsistency between observations (Isaac, 1971):

1. Response variation by the subject
2. Variations in test content or test situations
3. Variations in administration
4. Variations in the process of observation

Of the factors listed above, one, two and three were controlled through the use of filmed subjects, identical test control and one administration of the test using all of the raters at one time. The degree to which component four varies should account for most of the variation reported as the index of inter-rater reliability.

The procedure used to calculate the index involved tallying correct and incorrect ratings by focal point, calculating the focal point ratio and then averaging across focal points to represent the total skill. Table 15 portrays the reliability coefficients obtained by skill and teacher type.

Table 15. Inter-Rater Reliability of the Criterion Measure

	Fundamental Motor Skills			
Teacher Type	Run	Underhand roll	Overhand throw	Catch
P.E.	.81	.79	.89	.94
CLRM.	.97	.86	.82	.94

There were two limitations to the procedure described above: 1) the index of inter-rater reliability obtained was specific to one point in time, and 2) the index was specific to filmed performances. These limitations were imposed by time and cost constraints, and therefore the reliability coefficients must be cautiously interpreted by the reader with respect to their generalizability to other measurement situations.

Unit of Analysis

The formal definition of an experiemental unit is that it corresponds to the smallest division of the experimental treatment such that any two units may receive different treatments in the actual experiemnt (Cos, 1966). Experimental units must respond independently of each other to insure that the treatment applied to one unit does not markedly affect another unit. Disruptions by a troublemaker or general class interaction both violate assumptions of independence and, thus, invalidate the use of individual students rather than classrooms as the appropriate experimental unit (Lindquist, 1963; Lumsdaine, 1963; Campbell-Stanley, 1966; Cox, 1966; Glass and Robbins, 1967; Raths, 1967; Glass and Stanley, 1970). Although the above definition strongly suggests that the classroom is the appropriate experimental unit, other interpretations are viable when a program is individualized. When individualization occurs, each student is receiving a unique treatment within the experimental context. By definition, the individual student is therefore the appropriate experimental unit.

In addition to the criterion, "implementing I CAN as intended", a second criterion, "high to moderate individualization of instruction", was imposed prior to including a teacher in the study. Item 17 of the Consultant Monitor Form and item 15 of the Self-Report Monitor Form (see Appendix I, page 257 and Appendix L, page 283) were used to establish the degree to which individualization occurred. The above items were scored as indicated in Appendix L. Teachers who obtained scores below "high" or "moderate" on individualization were deleted from the study. Application of this criterion eliminated one physical education teacher and one classroom teacher in addition to the teachers deleted as a result of the more general monitor criterion described on page 93. Since the criterion of "high to moderate individualization of instruction" was held as prerequisite to teacher inclusion in this phase of the study, the individual student was used as the unit of statistical analysis.

Treatment

Administration of the treatment followed the guidelines established in the I CAN Teacher's Guide for proper implementation of the program. Replicability of an investigation is of crucial importance, yet is a quality which has been notably absent in reporting results of educational research. As indicated under question #3, "Implementation of I CAN", it is not enough to report the treatment in terms of a general descriptive statement or to even refer to a book or guide which provides a complete description of that treatment. In such an instance one is forced to make the assumption that the treatment occurred as intended or described. Anyone who has taught in the public schools is quite aware of the fallacy of this assumption. The information necessary to replicate a study is that information which describes what did occur, rather than that which was intended to occur. Such information is important for the accurate interpretation of both non-significent and significant results. A description of the degree to which I CAN was implemented as intended is included in the discussion of evaluative question #3, page 92.

Results

Expectations: It was expected that teachers implementing I CAN to a moderate to high degree would elicit positive change in the performance of their students. Positive change was defined as the acquisition by the student, through instruction, of at least one focal point not present at initial assessment of a given objective.

Observations: Table 16 illustrates changes in student performance on the eight selected I CAN objectives. A mean gain of at least one focal point was obtained on each skill. This was considered a meaningful gain by the developers of I CAN.[1]

A single sample t-test of the population mean when the variance is unknown was used to analyze the significance of the gain obtained between pre- and post- test scores.

Because the change data was gathered through a process of pre-assessment followed by reassessment which was continuous it should be noted that there was no potential for negative change to be reported. This did not appear to be a source of concern for the field test teachers. Had negative progress occurred, the inability to record it on the evaluation forms would have surfaced.

The calculated values strongly suggest that the change obtained for all eight skills could not reasonably have occurred by chance. Since an average gain of one focal point was considered meaningful, and since developers usually expect an instructional prototype to be approximately 60% effective, the percent of students gaining one or more focal points was calculated. As indicated in Table 14, the mean values attained represent a large percentage of students gaining one or more focal points. More than 70% of the students demonstrated such positive change on six of the eight skills, with 63.5% increasing on another. These figures indicate that the curriculum materials for those seven skills - run, horizontal jump, hop, underhand roll, underhand throw,

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[1] Both statistical and meaningful significance are criteria commonly used as decision points for subsequent action. Statistical significance refers to the probability that obtained difference scores could have occurred by chance, whereas meaningful significance is the minimal value which represents an important change in student behavior. Usually such a change is operationally defined as the smallest change in behavior that would be judged important enough to cause teachers, supervisors, or administrators to take action. The action may be either positive (support wide-scale implementation or further development) or negative (terminate implementation or require further development and evaluation prior to implementation).

Table 16. Changes in Student Performance on Selected Fundamental Motor Skills

Performance Area	Locomotor Skills			Object Control				
Mean Gain	1.2	1.6	1.4	1.1	1.2	1.4	1.7	1.0
Standard Deviation	.96	1.30	1.13	.90	.87	1.50	1.60	1.07
t	12.05[1]	11.61[1]	8.03[1]	11.04[1]	11.46[1]	8.03[1]	8.23[1]	9.80[1]
% Increase 1 or More Focal Points	76.3	78.7	73.8	72.9	76.8	63.5	76.7	57.3
% No Change	23.7	21.3	26.2	27.1	23.2	36.5	23.3	42.7
N	93	89	42	85	69	74	60	110
	Run	Horizontal Jump	Hop	Underhand Roll	Underhand Throw	Overhand Throw	Kick	Catch

[1] All t values were significant beyond PL .05.

overhand throw, and kick - show promise of being effective in promoting student change. Only the materials for the catch appear to be slightly deficient in this regard, with only 57.3% of the students assessed showing a meaningful positive change. Considering the conservative nature and the insensitivity of the instrument as disscussed on page 97, these values are quite high.

As indicated in Table 16, the N varied considerably from one skill to another. This fact is attributable to the selection of TPO's inherent in design and implementation of I CAN.

The data of Table 16 pool the results of two teacher types implementing I CAN. As previously indicated, both classroom teachers and physical education specialists provide the primary delivery system for physical education instruction in Michigan. Since I CAN was intended to be usable by both teacher types, it was important to investigate the effect of teacher type on student performance. Table 17 summarizes the analysis of variance results of teacher type across eight fundamental motor skills.

As indicated in Table 17, teacher type was significant in four of the eight skills tested. Review of the mean values involved shows that two of the tests favored the physical education specialists while two favored classroom teachers. Adding the value of one focal point (the criterion for a meaningful difference), there was only one skill (kick) which met both statistical and meaningful significance on teacher type. Further investigation regarding the reasons behind this finding is needed.

The fact that student performance was not different when both significance criteria are used lends support to utility of the materials for both teacher types. The finding has important implications for the delivery of physical education services to trainable populations. With further investigation we may find that a blend or sharing of responsibilities between the specialist and classroom teachers has particularly beneficial results for learning certain selected skills.

Decision Criteria: If the average gain was significant and equal to or greater than one focal point, the materials would be considered effective. Student performance falling below that level would initiate further study to determine why.

Recommendations: Since all of the skills tested met the criterion of statistical and meaningful significance across both teacher groups, they were considered effective. Feedback of a structured and unstructured nature obtained in the investigation of other aspects of I CAN provided many alternatives which were judged useful for improving the effect of the materials. Although many changes resulted from feedback obtained, no specific recommendations concerning particular TPO's were initiated from the results of data obtained on this question since the skills met criterion. Although there were specific instances where certain teacher types were below the meaningfulness criterion (3 of 16), data reported earlier concerning the insensitivity of the

Table 17. Analysis of Variance of the Results of Teacher Type on the Performance of Eight Fundamental Motor Skills

		Run	Horizontal Jump	Hop	Underhand Roll	Underhand Throw	Overhand Throw	Kick	Catch
Means	PE	1.434	1.415	1.303	1.102	1.184	.786	2.267	.830
	CLRM	.950	1.972	1.778	1.056	1.161	1.696	1.067	1.175
Std Dev	PE	.930	1.232	1.185	.872	.926	1.031	1.874	1.139
	CLRM	.932	1.341	.833	.955	.820	1.658	.907	.984
N	PE	53	53	33	49	38	28	30	53
	CLRM	40	36	9	36	31	46	30	57
Sum of Squares	Between	5.3392	6.6542	1.5938	.0448	.0090	14.4114	21.6000	3.2736
	Within	78.9189	141.8401	50.5253	68.3787	51.9041	152.4534	125.7333	121.7173
	Total	84.2581	148.4944	52.1190	68.4235	51.9130	166.8649	147.3333	124.9909
Mean	Between	5.3392	6.6542	1.5938	.0448	.0090	14.4114	21.6000	3.2736
Squares	Within	.8672	1.6303	1.2631	.8238	.7747	2.1174	2.1678	1.1270
F		6.1565	4.0815	1.2618	.0544	.0116	6.8062	9.9639	2.9047
Sig		.0149	.0464	.2680	.8161	.9146	.0110	.0025	.0912

dependent measure to important changes was judged to more than account for these deficiencies. Although further investigations regarding the effect of I CAN will be conducted, it appears that within the limitations and conditions of the design of the 1973-74 field test I CAN materials similar to the above eight skills can reasonably be considered feasible as aids to effecting desirable student performance increments.

Question #5. What are the characteristics of the population which may be related to student success?

Since the field test population included students with a variety of backgrounds, the possibility of differential program effectiveness was investigated. Information obtained could be used to modify aspects of the program which were not effective for certain subpopulations as well as describing apparent limitations of the program for users of the field test edition. Regression analysis was used to identify variables which were related to student achievement in each fundamental motor skill.[1]

Stepwise regression was conducted using the SPSS regression program (Nie, 1970) on the CDC 6500 at Michigan State University. The stepwise procedure allows variables to both enter and leave the equation on each step. An F-level of 1.000 was selected as the criterion for entry or exit. An overall F-level for regression of at least .10 was selected to insure the equation was not due to chance. Each coefficient in the final equation was required to have a small enough standard error that a 95 percent confidence interval would not include zero.

Expectations: No particular pattern of relationships between the independent and dependent variables was anticipated. It was speculated that a few variables may be important across all skills.

The purpose of developing effective instructional treatments is to produce a stronger relationship with an expected outcome than would be accounted for by concomitant or antecedent variables. Weak instructional treatments may therefore be expected to show strong relationships with assorted concomitant variables. Assuming that the treatments engendered by the implementation of I CAN were strong, the expectations were small of finding numerous high relationships between the independent variables entered in the equation and student performance.

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[1] The variables included in the analysis are listed with a brief description in Appendix P, page 333.

Table 18. Stepwise Regression Analysis on Student Characteristics and Performance

Variables	Beta Weights (Normalized Coefficients)					
	Run	Horizontal Jump	Underhand Throw	Overhand Throw	Underhand Roll	Catch
IQ	- .34					.27
Sex		-.27				
Attentiveness		-.29				-.38
GR3 (Brain-damaged Group)	.20	.18				.16
Absence				-.31	-.33	-.25
Verbal	.52					-.18
Math	-.40					.35
Age	.19					.14
Participation			-.39			
Health				-.30		-.18
GR2 (Down's)				-.20		
Permanence				-.19		
Attitude						
Self Perception						
Emotional Stability						
Social						
F-test of Regression	2.68	2.63	2.97	3.05	3.62	3.09
Significance	.04	.06	.10	.03	.07	.01
Multiple R	.58	.40	.39	.47	.33	.58
R^2	.33	.16	.15	.23	.11	.33
N	32	44	18	48	30	58

Observations: Table 18 summarizes the results of the stepwise regression analysis. Data on the skills hop and kick included significant proportions of missing information and therefore could not confidently be used for the regression analysis. In each case (except for the age variable) a negative coefficient indicates a high score on the independent variable. In all cases the beta weights listed were significantly different from zero.

In no instance did the equation obtained represent more than 33% of the variance in the skill gained. Review of Table 18 also reveals no apparent pattern of influence of independent variables on skill acquisition. The absence of such a pattern provides support for the contention that within the limitations of these data the I CAN guided instructional treatment is generalizable across student groups represented by these variables.

Decision Criteria: In the event that a pattern of relationships occurred between student subpopulations and skill acquisition, investigation into "why" would be initiated. Subsequent to determination of "why", program modification for the subpopulations identified would be initiated.

Recommendations: No revision of the program seems warranted from these data. Further study of the effects of influencing variables to substantiate these findings and further define other possible interrelationships is recommended.

Question #6. What are the teachers' reactions to the program?

Teacher reactions to I CAN were obtained as responses to the structured items on the Teacher Feedback Form (see Appendix I, page 232). Included were: indications of the need for equipment or media, helpfulness of the TLA's and helpfulness of the game activities. Reactions of a more general nature were also collected from the field test teachers. These included information relative to packaging, the curriculum structure, implementation, game activities, developmental inventories, teaching-learning activities, materials and media. Reactions that arose during consultant visits, workshops or as unsolicited feedback were also recorded. Each piece of information obtained which had ramifications beyond a single program component was logged in a notebook, evaluated by two or more staff members and converted into a suggested revision when the strength of the logic for the alternative was judged acceptable.

Throughout the field test, teachers were encouraged to identify deficiencies in the materials rather than strengths. Alternative suggestions which were perceived to be improvements for each identified problem were encouraged in every instance.

Initially, a program feedback form was generated to obtain teacher reaction information in a structured fashion. This instrument was to be administered near the end of the field test and was rather lengthy. As the time to send out the instrument approached, the evaluation staff decided that another demand placed on the field test teachers should be avoided. This decision was enacted for several reasons: 1) information regarding many of the questions on the proposed form was already in hand from unexpected responses; 2) much of the information was going to precipitate changes in I CAN based on the strength of the logic supporting the proposals rather than on the quantity of like proposals; 3) the teachers, in the opinion of the evaluators, were near a point where additional demands might have impaired ongoing data collection. The program feedback form was, therefore, abandoned.

Helpfulness of the TLA's

Expectations: It was anticipated that the field test teachers would rate the TLAs as helpful in the majority of cases. Teachers were encouraged, however, to be critical so that deficient TLAs would be identified. With the identification of deficiencies, alternative suggestions were requested and anticipated.

Observations: Teacher reactions to the helpfulness of the TLAs were collected on the Teacher Feedback Form, by TPO for each TLA. The response options included: very helpful, helpful, not very helpful, worthless (omit). Of the 74 Body Management TLAs rated, 50% or more of the ratings occurred in each of the above categories in the following frequencies: very helpful - 12, helpful - 37, not very helpful - 1, worthless (omit) - 0, and 3 TLAs split at 50-50 between the "very helpful" and "helpful" categories.

Data on the Fundamental Skills Module was obtained using the same response categories. Of 99 TLAs rated, 50% or more of the ratings occurred in the response categories in the following manner: very helpful - 61, not very helpful - 5, worthless (omit) - 0. Six TLAs were split 50-50 between the "very helpful" and "helpful" categories.

A summary of the data collected including the number of raters and the percent of responses in each category by TLA is included in Tables 19 and 20, pages 299 and 302 of Appendix M.

Decision Criteria: Responses occurring in the last two response categories were considered indicators of serious deficiencies. Deficiencies rated by more than 15 percent of the respondents were prompts for further action. Review of the alternatives proposed by the respondents was conducted to generate revision recommendations. The decision to recommend a revision was based upon the strength of the rationale (as judged by three or more of the developers) supporting the proposed alternative.

Recommendations: Many recommendations specific to each TLA were enacted. The alternatives included additions, deletions and modifications of the teaching cues, changes in organization and equipment suggestions.

Helpfulness of the Game Activities

Expectations: Like the TLAs, it was anticipated that the game activities would be judged helpful by the field test teachers. It was expected, however, that many alternatives would be identified that would strengthen this aspect of the instructional modules.

Observations: The data obtained on game activity helpfulness was collected with the Teacher Feedback Forms using the response categories: very helpful, helpful, not very helpful, worthless (omit), did not use, used alternative. Of 39 Body Management game activities rated, 50 percent or more of the responses occurred in the response categories as follows: very helpful - 14, helpful - 14, not very helpful - 5, worthless (omit) - 0, did not use - 2, used alternative - 0.

For the 60 game activities of the Fundamental Skills Module (using the same response categories) 50 percent or more of responses occurred in each category as follows: very helpful - 14, helpful - 27, not very helpful - 1, worthless (omit) - 3, did not use - 5, used alternative - 2. Of 6 game activities which had 50-50 splits in responses, one was between the positive responses, one between negative responses and four split between positive and negative responses. Tables 21 and 22, pages 306 and 308 of Appendix M, include the number of raters and percent of ratings by response category.

Decision Criteria: Responses occurring in the last four response categories were viewed as indications of deficiencies. Deficiencies rated by more than 15 percent of the respondents were reviewed for suggested alternatives. Alternatives identified which had strong support, as judged by three or more staff members, were included as recommended revisions.

Recommendations: As with the teacher reactions to the TLAs, reactions to the game activities were very helpful to the developers. Although responses to game activity helpfulness were largely positive, the many alternative activities or approaches suggested for identied deficiencies were valuable. Recommendations enacted were similar to those described under "Recommendations" for TLA helpfulness above.

Indications of Need for Equipment or Media

Expectations: I CAN was developed with a conscious attempt to minimize the amount of equipment and media necessary to implement a good physical education program. This approach was taken to minimize the costs of such programs. It is well known that wise use of certain pieces of equipment and media can be very effective in certain learning situations. Information relative to the utility of equipment-media approches was included in the teacher feedback forms to give visibility to this area as a source of alternatives to potential deficiencies in the materials. It was expected that some useful suggestions regarding specific use of media would be forthcoming for certain aspects of the instructional materials.

Observations: Teachers were asked if there were instances where pictures, films, posters, records or some other form of equipment or media would facilitate the teaching of the content of the TPO. Response options were "yes" and "no" with a request to describe. Of 10 Body Management TPOs rated, 50 percent or more of the responses occurred in the response categories as follows: yes - 4, no - 4 and 2 50-50 split on 2. On the Fundamental Skills TPOs (15 rated) 50 percent or more of the responses occurred as follows: yes - 12, no - 3, Tables 23 and 24, pages 311 and 312 of Appendix M, include the number of raters and percent of ratings by response category.

Decision Criteria: Decision criteria used were the same as those stated above for TLA and game activity helpfulness. Alternatives were reviewed for the TPOs which received indications of need for media or equipment and recommendations made based upon the data and strength of supporting rationale.

Recommendations: Many recommendations for equipment and/or media were made. Some were specific uses of rather traditional equipment, such as mats, while others were for more unique or specific equipment types. The vast majority of alternatives suggested were for loop films which portrayed the focal points of the EO's. Similarly, posters depicting key aspects of correct execution of the focal points were suggested.

Generic Reactions

Expectations: The I CAN development staff anticipated suggestions from field test teachers to change several aspects of the curriculum. Many valuable recommendations were expected in several categories, ranging from elements of specific focal points to the general structure of the curriculum.

Observations: The expectation that teachers would react to a wide variety of program components was fulfilled. Their reactions were organized into nine categories which provide an overview of teacher response to I CAN. Only those recommendations which were strongly supported by logic were considered for implementation in revising the materials. Recommended revisions are included in Appendix Q, page 335. These recommendations are summarized below.

1. Packaging. Feedback regarding the packaging of the curriculum materials led to six generic recommendations. Teacher suggestions generally focused on improving the usability and transportability of the materials by means of consolidating, reorganizing, and clearly marking portions of the materials.

2. Curriculum Structure. Six generic recommendations regarding the structure of the curriculum were generated from teacher reactions. In this area recommendations primarily concern the addition of enabling objectives, focal points, or descriptors for performance preliminary to the mature pattern.

3. Teaching-Learning Activities. A considerable number of recommendations (12) for changes in the Teaching-Learning Activities were determined to have implications for valuable materials revision. These dealt mainly with the format and content of the TLAs, with teachers indicating a desire for more specific instructional cues for their own use.

4. Game Activities. The four recommendations for revising the Game Activities again pointed up the teachers' desire for the inclusion of more specific information on the Game Activities sheets, such as: appropriate age range, equipment or materials required, group size suggested, etc.

5. Developmental Inventory. A number of recommendations were made regarding the Developmental Inventory, most of them concerning the Student Performance Score Sheet. Changes were suggested in the formating and content of this instrument which would make it easier for teachers to use. The assessment symbols were seen to be confusing, and a good alternative was suggested.

6. Implementation and Long-Term Planning. Suggestions for implementation centered around the problems of assessing student performance on body management objectives. In the area of long-term planning, teachers requested more information regarding skills prerequisite to the I CAN TPOs.

7. Teacher Training. Recommendations in this category included suggestions for training procedures and additions to the Teacher's Guide.

8. Materials and/or Media. Field test teachers recommended that film loops and posters be provided with the curriculum materials. Suggestions were made for improving the illustrations in the materials and for using records as teaching aids.

Decision Criteria: As noted previously, teacher reactions which suggested revisions in the program were reviewed by two or more project staff and evaluated as to the strength of the local supporting them. Only those recommendations with a strong logic base were considered in the materials revision.

Recommendations: The recommendations generated by teacher reactions were summarized by category and reviewed by the development staff as to the feasibility of implementing the revisions suggested. The revision process is schematically portrayed in Figure 12. Nearly all of the recommendations for revision were enacted.

Question #7: What are the student reactions to the program?

Since the population of the field test were elementary age trainable mentally retarded students, no direct assessment of their reactions to the program was attempted. Rather, teacher perceptions of student reactions were collected. Student reactions were considered positive or negative to the degree that they were attentive to the activities of the TLAs and willing to participate in the activities of the program.

Expectations: It was expected that student reaction in the categories "attentiveness" and "willingness" would be rated "high" or "moderate" for the majority of cases. It is recognized that "good" teachers can make most things acceptable to students, while "poor" teachers could make even good materials unacceptable to students. All things being equal, it was hoped that the structure, purpose, objectives and activities would promote "good teaching" to the extent that student attentiveness to instruction and student willingness to participate would be rated "high" by the field test teachers.

Observations: Student reaction to I CAN is included in Tables 25 - 28, Appendix M, pages 313 - 316. Attentiveness of the TMI students to the TLAs of the Fundamental Skills and Body Management TPOs are included in Tables 25 and 26. Willingness to participate information for the same respective modules is included in Tables 27 and 28.

Teacher rating of student attentiveness supported the expectation that students would react favorably to the activities of the TLAs. The response categories available to describe attentiveness were: high, moderate, and low. Although there were entries in each of the above categories, the vast majority of ratings occurred in the "high" and "moderate" categories with a substantially larger number of these reported in the "high" category.

Within the fourteen Fundamental Skill TPOs rated, the categories in which 50% or more of the ratings occurred were: high - 9, moderate - 1, low - 0. The remaining TPOs had less than 50% of the ratings, and were split among the three categories.

A similar but weaker response spread was obtained on the eight TPOs of the Body Management Module. Using the same scale, the categories in which 50% or more of the responses occurred was: high - 4, moderate - 3 and low - 1. The figures for the Fundamental Skills and Body Management TPOs provide merely a rough estimate of student attentiveness in that they represent a summary by TPO of several estimates specific to each focal point. Data specific to each TLA was needed for the purposes of TLA revision but was not considered important for reporting purposes beyond the following "TLA specific" overview. Of 95 Fundamental Skill TLAs rated for attentiveness, 39 (41%) had 15% or more of the responses in the "low" category. Within the Body Management module, 16 TLAs of 49 (33%) rated had 15% of the responses in the "low" category.

Ratings of student willingness to participate also supported the expectation that students would react favorably to the activities of the TLAs. The response categories used to describe "willingness to participate" were: anxious, willing, neutral and unwilling. Although there were entries in each category, the large majority of responses were in the top two categories (see Table 20, Appendix M, page 305).

Of the fourteen Fundamental Skills rated the categories which included fifteen percent or more of the ratings were: anxious - 14, willing - 12, neutral - 5, unwilling - 0. For the Body Management TPOs (10) fifteen percent or more of the ratings were recorded as follows: anxious - 9, willing - 7, neutral - 4, unwilling - 1. Of the 87 TLAs rated within the Fundamental Skills TPOs, 34 (39%) had a total of 15% or more of the responses in the neutral or unwilling categories. For the Body Management TPOs of 55 TLAs rated, 17 (31%) had a total of 15% or more of the responses in the neutral or unwilling categories.

Decision Criteria: In instances where 15% of the adjusted scores (teacher weight times student reaction see note #1 of Appendix M, page 317 , for a description of the weighting procedure) occurred in the low rating category, revisions were indicated. Teacher comments and consultant debriefing of teachers was the primary source of data for generating revision alternatives. Support based on the logic of alternative proposals by three or more I CAN staff members resulted in TLA revisions.

Recommendations: Review of the teachers' reactions to the strength of student attentiveness and willingness to participate in the activities of the TLAs suggested that few revisions were needed. Most of the responses to low ratings in these categories were perceived to interact with characteristics of the lesson which are not related to I CAN but rather to student and context variables. Attending behavior, closeness to recess periods, time of day, a disruptive student, level of entry behavior, amount of teacher participation in the activity were all cited as reasons for low ratings. The concensus seemed to indicate that within elementary TMI populations, the range in attentiveness and willingness to participate should be expected to be spread. Several teachers specifically mentioned that no revisions were indicated even though they had scored several students in the low categories. This feeling was supported in the fact that few suggested alternatives were noted on the teacher feedback forms for revision purposes. In lieu of the data obtained, the development staff was alerted to TLAs which were scored low. They were instructed to critically review the TLAs deficient on this dimension in an attempt to improve their appeal to student participants.

Question #8: What are the unanticipated or indirect results of the field test?

Following Stake's (1967) suggestion, the evaluators of I CAN believe that an evaluation report should document the impact of the program upon the sample involved. The field test of I CAN provided some unique opportunities for teachers and students alike, both as a direct result of and in addition to stated intentions of the program. Experiences provided through the field test of I CAN which would not ordinarily have occurred are delineated below.

Outcomes

1. The field test of I CAN provided teachers of TMI youngsters with instructional materials from which a systematic approach to teaching physical education could be implemented. The fact that performance objectives, assessment tools, prescriptive teaching-learning activities, and materials for planning and evaluating a program were provided to 19 school districts and 26 teachers where no replicable materials were previously available was seen as a definite benefit.

2. In addition to the materials was the provision of a system of teaching which involved the mechanics for implementing a diagnostic-prescriptive physical education program. The acquisition of skills in individualizing instruction by the field test teachers was also viewed as a positive outcome.

3. A great deal of inservice training of field test teachers occurred. Teachers were guided through the process of planning their physical education programs, which required the identification and statement of goals, the operationalization of those goals in performance objectives and the planning of activities to achieve the stated objectives in a systematic fashion.

4. Students within the field test classes (and in many instances those not designated as field test classes) achieved many skills that they did not have prior to the implementation of I CAN.

5. Although there is no data to support the feeling, comments from supervisors-administrators suggest a new realization regarding the importance of skill acquisition and body awareness as "spin-off" from a systematic, objective-oriented, teaching approach.

6. Undergraduate and graduate programs at MSU have profited in numbers, content and examples from the interaction of I CAN staff members and students with public school teachers engaged in the implementation and evaluation of a new program.

7. Field test teacher requests for continued involvement with the I CAN staff and the Field Service Unit in Physical Education for the Handicapped led to the Michigan State Department of Education funding of a Title 1, "Motor Improvement Project" based upon the implementation of I CAN in five geographically strategic sites during the 1974-75 school year.

Implications

The evaluative results have a number of implications which are of significance to the education of TMI children and for inservice and preservice training programs:

1) The results support the appropriateness of the materials and the importance of an early, rather than late, start in school physical education for the TMI. In addition, the results show that a structured physical education program can produce changes desired in performance in older retardates as well.

2) The results provide evidence of the material effectiveness in an individualized instructional program utilizing a diagnostic-prescriptive teaching behavior model.

3) There was evidence that students could profit from physical education classes taught by existing delivery systems in that both special education classroom teachers and physical education specialists effectively implemented the I CAN instructional system.

4) The flexibility and adaptability inherent in the implementation of the I CAN instructional system (resource materials content area) was evidenced in the building of specific programs for local educational agencies.

5) The consumer-based approach for implementation proved to be effective for inservice teacher training. The project staff employed the consumer approach to meet the needs of the teacher with the pupils in the classroom. This approach enables the less skilled teacher to function more effectively and yet also allows the highly skilled and creative teacher to make maximum use of her/his talents. It is possible that the large-scale attempts to upgrade the performance of underachieving children have generally failed to produce results because the teachers were not provided with complete sets of curriculum resource materials and follow-up supportive inservice training through a consumer-based consultant approach in the classroom with the students based on teacher's needs. It is assumed that the inservice training procedures also markedly increase the probability that teachers, aides and untrained volunteers will be able to function effectively in the implementation of the new curriculum products and teaching skills.

6) The success of the project suggests that the I CAN instructional system would be valuable curriculum resource materials for other

target populations of children, handicapped and non-handicapped. Some support usability is provided by the fact that the curriculum is currently being used effectively in K-2 with non-handicapped learners, with educables, with severely mentally impaired, with children with learning disabilities and children with emotional problems.

7) Field test teacher dialogue with associates has led to several regional workshops in Michigan. These workshops have dealt with instruction and experiences relating to systematic instruction in physical education, based upon the I CAN materials.

8) The opportunity for university and public school persons to work together on common goals within the constraints posed by local districts is beneficial for both parties. The team approach to planning, implementing, and evaluating the physical education program provides for upgrading both the public schools and the preparation of teachers and future teacher educators.

Recommendations for Further Action. Although the term "trainable" implies that the TMI child can acquire simple vocational skills and can become independent to some some degree as an adult, many TMI children fail to achieve these goals primarily because of the inadequacy of the curriculum currently in use.

The assumption underlying the present project was that a comprehensive plan of action for school physical education and community socio-leisure programming (beginning in the preschool years and continuing through high school) is critically needed for the TMI child. The first phase, I CAN's a primary motor skills program, for children 5-14 years, is now complete.

Subsequent projects are needed for the development and evaluation of other aspects of such a comprehensive plan.

1) Continued Improvement and Summative Evaluation of I CAN. Although I CAN has undergone evaluation and revision and exists as edition one, many improvements remain to be incorporated. These improvements are perceived to cover many aspects of I CAN but would probably focus on adding alternative teaching approaches to the current selections. These types of data should be systematically collected during the course of further investigation of I CAN's potential of a summative nature. Such information could be compiled over 3-5 years such that a second edition would truly represent a vastly improved product.

2) Facilitating Usability of the I CAN Instructional System: Project Extension. The I CAN instrucitonal system was developed from pre-

school through continuing skills. It is a project in which the TMI child could begin and continue in adult life to use home-community leisure program opportunities. The student would begin developing specific lifetime and outdoor living skills emphasizing the understanding and function of (a) community recreational services and opportunities, (b) leisure activities that he might perform, and (c) relationship of his leisure and daily activities to education and work that he might eventually perform. The remainder of the program would be similar to the Primary Skills Program in structure. The first draft of these skills has been generated.

The most practical aspects of the everyday leisure/living would be reflected in field trips to community settings, participating in special events and games, developing leisure time pursuits for self and present and future family groupings. The approach would be to include school physical education with recreation in home and community settings. Current work underway at M.S.U. on associated learnings in math, reading, self-help and pre- and vocational skills would dovetail with such a project. This project would result in a leisure education home/school/community program plan for TMI 3-25 years of age.

3) Facilitating Usability of the I CAN Instructional System Cooperatively With Learning Resource Program (BEH). This project would focus on broadening the utility and distribution for the I CAN primary motor skills program, to provide for validated curriculum resource materials for other populations of handicapped children and youth. A systematic cycle of field-tested adaptations (relevant to important educational parameters and learning characteristics) for other handicapped and mainstreamable populations would be developed and disseminated. The project activities would require establishing cooperative efforts with the Learning Resource Program (Region 6 and S3), NCEMMH, NIMIS, and national needs assessment.

4) Applied Research Project (Evaluative Studies). The project would focus on the school learning variables identified as most promising for furthering school learning. Such a project would establish a research to practice model for program and curriculum development in physical education and recreation for the handicapped. A feedback loop to recycle learning from the field to preservice training and vice versa would be provided. Ultimately, a field-research service center in physical education and recreation would be structured along with development of a cadre of expertise for curriculum/programming and evaluation which is sadly lacking. Help in dissemination and diffusion to the field and for interinstitutional coordinated efforts between higher education and state departments would be two major functions of such a center.

5) Consumer-Based Dissemination Strategy. Dissemination/demonstration projects should be launched (developer, publisher, Learning Resource

Network and NCEMMH) to help schools use new curriculum products and apply new knowledge through the delivery of specialized inservice training programs correlated with funded preservice professional preparation programs in special education, physical education, and recreation. The consumer-based model approach used in the implementation of I CAN has much potential to serve this end.

BIBLIOGRAPHY

American Association of Colleges for Teacher Education; Performance Based Teacher Education Project Committee. Achieving the Potential of Performance Based Teacher Education: Recommendations. American Association of Colleges for Teacher Education PBTE Series: No. 16, February, 1974.

Armstrong, J.R. Establishing Criteria for Making Decisions About Instructional Materials. Specialized Office Three. Wisconsin Research and Development Center for Cognitive Learning. University of Wisconsin, 1973.

Armstrong, J. R. (ed.) A Sourcebook for the Evaluation of Instructional Materials and Media. Washington, D.C., USOE Bureau of Education for the Handicapped, 1973.

Baker, E.L. The Role of the Evaluator in Instructional Development. In Gary D. Borich (ed.) Evaluating Educational Programs and Products. Englewood Cliffs: Educational Technology Publications, 1974.

Barnett, E.C. and Cantor, G.N. Discrimination set in defectives. American Journal of Mental Deficiency, 1957, 62, 334-337.

Blount, W. A comment on language, socialization, acceptance, and the retarded. Mental Retardation, 1969, 7, 33-5.

Briggs, L.J. Sequencing of Instruction in Relation to Hierarchies of Competence. Pittsburgh: American Institutes for Research, 1968.

Burke, D. and Rowland, M. An inservice technique to teach word attendants how to give language development training to institutionalized retardates. Paper presented at the annual meeting, Michigan Speech and Hearing Association, Lansing, Michigan, October, 1971.

Butman, J.W. and Hetcher, J.L. The Role of the Evaluator and Developer in Educational Research and Development. In Gary D. Borich (ed.) Evaluating Educational Programs and Products. Englewood Cliffs: Educational Technology Publications, 1974.

Butterfield, E.C. and Zigler, E. The effect of success and failure on the discrimination learning of normal and retarded children. Journal of Abnormal Psychology, K965, 70, 25-31.

Campbell, D. and Stanley, J. Experimental and Quasi Experimental Designs for Research. Chicago: Rand McNally, 1966.

Cantor, G.N. and Ryan, T.D. Retention of verbal paired-associates in normals and retardates. American Journal of Mental Deficiency, 1962, 66: 861-865.

Chasey, W.C. and Knowles, C.J. Effects of overlearning on retention and relearning of gross-motor skill by mentally retarded males. Perceptual and Motor Skills, 1973, 36: 503-509.

Clarke, A.D.B. and Blakemore, C.B. Age and perceptual-motor transfer in imbeciles. British Journal of Psychology, 1962, 53: 321-330.

Cromwell, R.L. Selected aspects of personality development in mentally retarded children. Exceptional Children, 1961, 28, 44-51.

Cox, D.R. Planning of Experiments. New York: John Wiley and Sons, Inc., 1966.

Davis, R.H., Alexander, L.T. and Yelon, S.L. Learning System Design. East Lansing, Michigan (MSU): Prepublication Edition by the Authors, 1972.

Denny, M.R. A theoretical analysis and its application to training the mentally retarded. In N. E. Ellis (ed.) International Review of Research in Mental Retardation. New York: Academic Press, 1966.

Dunn, L.M. (ed.) Exceptional Children in School. New York: Holt, Rinehart and Winston, 1973.

Ebel, R.L. Estimation of the Reliability of Ratings. Psychometrika, 1951, 16, 407-424.

Evans, D. and Hampson, M. The language of mongols. British Journal of Disorders of Communication, 1969, 3, 171-181.

Gagne, R.M. The Conditions of Learning, New York: Holt, Rinehart and Winston, 1965.

Gagne, R.M. and Paradise, N.E. Abilities and learning sets in knowledgeable acquisition. Psychological Monographs, 1961, 75, 14 (Whole Number 518).

Glass, G.V. and Robbins, M.P. Neurological Organization and Reading. Reading Research Quarterly, 1967, 3, 1, 7-51.

Glass, G.V. and Stanley, J. Statistical Methods in Education and Psychology. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970.

Gollop, D.F. and Armstrong, J.R. A Working Paper: Selecting Instructional Materials for the Mentally Retarded. Specialized Office Three. Wisconsin Research and Development Center for the Cognitive Learning. University of Wisconsin, 1975.

Grossman, H.J. (ed.) Manual on Terminology and Classification in Mental Retardation. Monograph Supplement to American Journal of Mental Deficiency, 1973.

Hardman, M.L. and Drew, C.J. Incidental learning in the mentally retarded; a review. Education and Training of the Mentally Retarded, 1975, 10(1), 3-9.

Hamreus, D.G. Instructional systems development. In: CORD National Research Training Manual, J. Crawford (ed.), Oregon State System of Higher Education, 1969, 2nd edition.

Hayden, F. The nature of physical performance in the trainable retarded. Paper presented at the Joseph P. Kennedy, Jr. Foundation Third International Scientific Symposium on Mental Retardation, Boston, April, 1966.

Heber, R.F. Motor task performance of high grade mentally retarded males as a function of the magnitude of incentive. American Journal of Mental Deficiency, 1959, 63, 667-671.

Hirsch, W. and Lowman, C.L. Motor skill transfer by trainable mentally retarded. Research Relating to Children, 1965, 19, 82.

Houston, W.R. Strategies and resources for developing a competency based teacher education program. Paper presented at the New York State Education Department, Division of Teacher Education and Certification and Multi-State Consortium on Performance-Based Teacher Education, Octorber, 1972.

Isaac, S. and Michael, W.B. Handbook in Research and Evaluation. San Diego: Robert Knapp, 1971.

Johnson, G.O. and Blake, K. Learning Performance of Retarded and Normal Children. Syracuse University Press, 1960.

Jordan, T. and DeCharms, R. The achievement motive in normal and mentally retarded children. American Journal of Mental Deficiency, 1959, 64, 457-466.

Kolstoe, Oliver P. Teaching Educable Mentally Retarded Children. New York: Holt, Rinehart and Winston, 1970.

Lance, W.O. Instructional Media and the Handicapped. ERIC Clearinghouse on Media and Technology. Stanford University, 1973.

Lillie, D.L. Research implications: the development of motor proficiency of educable mentally retarded children. Unpublished manuscript, 1967.

Lindquist, E.F. Design and Analysis of Experiments in Psychology. Boston: Houghton Mifflin, 1963.

Lumsdaine, A.A. Instruments and Media of Instruction in N.L. Gage (ed.). Handbook of Research on Teaching. Chicago: Rand McNally & Co., 1963.

Mager, F. Preparing Instructional Objectives. Belmont, California: Rearon Publishers, 1962.

Mayer, W.V. (ed.) Planning Curriculum Development Monograph. Biological Science Curriculum Study, P. O. Box, Boulder, Colorado, March 1975.

McManis, D.L. Pursuit-rotor performance of normal and retarded children in four verbal-incentive conditons. Child Development, 1965, 36, 667-683.

Nie, N.H., Bent, D.H., Hull, C.H. Statistical Package for the Social Sciences. New York: McGraw-Hill, 1970.

O'Connor, N. and Hermelin, B. Speech and Thought in Severe Subnormality. New York: Macmillan Co., 1963.

Raths, J. The Appropriate Experimental Unit. Educational Leadership, 1967, 25, 263-266.

Seefeldt, V.D. Developmental Sequence of Catching Skill. Paper presented at the American Association of Health, Physical Education and Recreation National Convention, Houston, Texas, 1972.

Seefeldt, V. Special application of physical activity to the educable and trainable mentally retarded. Michigan State University, 1971.

Stake, R.E. The Countenance of Educational Evaluation. Teachers College Record, 1967, 68, 7, 523-540.

Twelker, P.A. Designing instrucitonal systems. In J. Crawford (ed.) CORD National Research Training Manual, (2nd ed.), Oregon State System of Higher Education, 1969.

Wessel, J., Vogel, P., and Knowles, C. Studies related to mentally retarded persons. Challenge, Volume 10-No. 2, February-March 1975.

Zeaman, D. and House, B.J. Progress Report No. 3: An Attention Theory of Retardate Discrimination in Learning. Bethesda, Maryland: National Institutes of Mental Health, 1962.

APPENDIX A: LIST OF PARTICIPANTS

1. Project Staff and Committees
2. Writers and Evaluators
3. Field Test Centers

I CAN Project Staff and Committees, 1971-75

Janet A. Wessel
Project Director
Michigan State University

1971-72	1972-73	1973-75
Project Staff	Project Staff	Project Staff
David Fuller	Claudia Knowles	Claudia Knowles
Jeralyn Plack	Jeralyn Plack	Paul Vogel
Paul Vogel	Paul Vogel	
Assistant Staff	Assistant Staff	Assistant Staff
Kenneth Boyd	Larry Carmichael	Larry Carmichael
Nancy Cato	Mary Drake	Mary Drake
Jane Watkinson	Carole Jenkins	Gina Green
	Gerald Nester	Boku Hendrickson
	Paula Serra	Betty Lessard
	Jane Watkinson	Tom Sampson
		Joanne Warner

Project Advisory Committee

Lou Alonso
Director
USOE/MSU
IMC/HCY

Doanld A. Burke
Professor
Special Education
Michigan State University

Dave Haarer, Director
Special Education,
Ingham Intermed School
District
Mason, Michigan

Vern Seefeldt, Professor
Motor Development - HPR
Michigan State University

Ted Ward, Professor
Curriculum
Michigan State University

Murray O. Batten
Director of Special Education
State Department of Education
Lansing, Michigan

Harry Butler
Director of Special Education
Lansing Public Schools

Lee Quinn, Consultant
Physical Education
State Department of Education
Lansing, Michigan

Gene Thurber, Consultant
Special Education
Lansing, Michigan

John M. Breaugh, Principal
Marvin E. Beekman Center
Lansing, Michigan

Frederic H. Chappell, Consultant
Special Education
State Department of Education
Lansing, Michigan

Phillip Reuschlein, Professor
Curriculum - HPR
Michigan State University

Jane Walline, Consultant
Special Education
Lansing, Michigan

Writers and Evaluators, 1971-74 I CAN Curriculum Project

1971-72 Writing Support Team

Kenneth Boyd
Jo Ann Carlisle
Ola Cook
Joseph Daniel
Judy Flachs
Don Kopec
Betty Lessard
Gerald Nester
Robert Thorburn

1972-73 Writing Support Team

Cathy Adams
Nancy Clark
Janet Daniel
Judy Flachs
Jodie Galdeen
Raul Iribarren
Susan Kolp
Betty Lessard
Mertie Manning
Susan Sponeybarger
Joanne Warner

1973-74 Writing Support Team

Crawford Kennedy
Janet Daniel
Judy Flachs
Cathy Higgs
Don Kopec
Carolyn Redd
Sheryl Swank

Pilot-Test Teachers Beekman Training Center Lansing, Michigan

David Fuller
Susan Sponeybarger

Pilot-Test Teachers Beekman Training Center

Judy Flachs
Don Kopec
Susan Sponeybarger

Eaton County Special Classes

Marge Springman
Claudia Tanner
Jane Williams

Consultant Reviewers - Process and Content

Donald Burke, Professor 1971-73
Special Education
Michigan State University

Edward Meyen, Chairman 1972-73
Special Education
University of Missouri

William Chasey, Professor 1971-72
The John F. Kennedy Center for Research on Education and Human Development
George Peabody College for Teachers

Julian Stein, Consultant 1971-73
Programs for the Handicapped
A.A.H.P.E.R.

Walter Ersing, Professor 1972-73
School of Health, Physical Education and Recreation
Ohio State University

Vern Seefeldt, Professor 1971-73
Motor Development - HPR
Michigan State University

MICHIGAN FIELD TEST SITES

I CAN

August 1973 - June 1974

(Berrien County)
Gard School
Ms. Mary Wilhelmsen, Principal
2900 Lakeview
St. Joseph, MI 49085
Jean Ryan, Teacher

(Clinton County)
Clinton Inter. School Dist.
Larry Schwartzkopf
Special Education Director
4179 S. U.S. 27
St. Johns, MI 48879

(Eaton County)
Eaton Inter. School Dist.
Ms. Janeen Mauldin, Principal
245 S. Cochran
Charlotte, MI 48813
Margorie Springman, Teacher
Jane Williams, Teacher

(Genesee County)
Roosevelt Special Education Center
Elden Carlson, Principal
4310 Thetford
Flint, MI 48505
Tim Jahn, Teacher

(Ingham County)
Beekman Training Center
John Breaugh, Principal
2901 Wabash Road
Lansing, MI 48910
Judy Flachs, Teacher
Don Kopec, Teacher
Susan Sponeybarger, Teacher

(Ionia County)
Forrest Grove School
Ms. Clarice Cummings, Principal
240 Lafayette - Box 24
Ionia, MI 48846
Jim Paris, Teacher

(Kalamazoo County)
J. F. Kennedy Center
Dick Pattison, Principal
1411 Oakland Drive
Kalamazoo, MI 49008
Sis Dewitt, Teacher
Pat Milley, Teacher

(Kent County)
Lincoln School
Bill McMillan, Principal
860 Crahen Road, N.E.
Grand Rapids, MI 49506
Diane Gahan, Teacher

(Livingston County)
Livingston Inter. School Dist.
Dave Fisher, Principal
1425 W. Grand River
Howell, MI 48843
Jane Burke, Teacher
Bob Steinkamp, Teacher

(Macomb County)
Bovenschen School
Don Bates, Principal
12345 Frazho Road
Warren, MI 48089
Joe Daniel, Teacher
Paul Duda, Teacher

(Macomb County)
Glen H. Peters School
William Harding, Principal
46650 Heydenreich Road
Mt. Clemens, MI 48043
Jan Daniel, Teacher
Bob Schroeder, Teacher

(Midland County)
Midland Public Schools
Lynn Marvin
Director of Special Education
600 E. Carpenter
Midland, MI 48640
Mary Branson, Teacher

MICHIGAN FIELD TEST SITES (continued)

(Monroe County)
Monroe County Education Center
Gary R. McLean, Principal
1091 South Raisinville Road
Monroe, MI 48161
Sue Palmer, Teacher
Linda Brunette, Teacher

(Muskegon County)
Muskegon Public Schools
Charles Wilks, Principal
947 E. Wesley
Muskegon, MI 49442
Maxine Cobb, Teacher

(Saginaw County)
Holland Avenue School
John Laatsch, Principal
1300 E. Holland
Saginaw, MI 48601
Paul Sauvie, Teacher

(Oakland County)
Twin Sun School
Bruce Mooney, Principal
Loon Lake Road
Walled Lake, MI 48088
Sue Kolp, Teacher
Madge Davidson, Teacher
Sue Battani, Teacher
Thelma Johnson, Teacher

(Ottawa County)
Ottawa Area Center
Harry Mulder, Principal
10160 96th Avenue
Zeeland, MI 49464
Raul Iribarren, Teacher

(Roscommon County)
COOR Inter. School Dist.
John Gretzinger, Jr., Principal
Route 4
Roscommon, MI 48653
Janice Ferguson, Teacher

(St. Clair County)
Woodland School
Shirley Swegles, Principal
1113 Delaware Avenue
Marysville, MI 48040
Mark Wengblad, Teacher

(Washtenaw County)
Sullivan Special Education Center
Barb Sturm, Principal
5225 Jackson Road
Ann Arbor, MI 48103
Tom Sampson

APPENDIX B: LIST OF WORKING PAPERS BY TITLE

LIST OF WORKING PAPERS BY TITLE

TOPIC A: Planning Curriculum Development

Paper 1: Some base assumptions underlying planning curriculum in physical education for the trainable mentally retarded child

Paper 2: A conceptual base for designing the I CAN curriculum for the mentally retarded

Paper 3: Designing general procedures for curriculum development and evaluation: research to practice model

TOPIC B: Goal Identification and Objective Specification

Paper 4: Performance Area: Aquatics
Rationale for Performance Content
Objective Outline
Rationale for Modular Content

Paper 5: Performance Area: Body Management
Rationale for Performance Content
Objective Outline
Rationale for Modular Content

Paper 6: Performance Area: Fundamental Skills
Rationale for Performance Content
Objective Outline
Rationale for Modular Content

Paper 7: Performance Area: Health/Fitness
Rationale for Performance Content
Objective Outline
Rationale for Modular Content

Paper 8: Physical Activity and the Mentally Retarded: Implications for Learners' Need

TOPIC C: Instructional Design Specifications

Paper 9: Physical skills learning

Paper 10: The structure of the I CAN curriculum: Psychomotor, Affective, Cognitive

Paper 11: Learning characteristics of the TMR: Implications for evaluation

Paper 12: Guidelines for instruction: Relevance to learning characteristics of the TMR

Paper 13: Factors influencing learning: Relevance to I CAN instructional materials

Paper 14: Diagnostic teaching

Paper 15: Improving instruction in physical education for the TMR through a continuous progress programming model

Paper 16: Studies on programming replication in physical education for the mentally retarded

TOPIC D: Developing Instructional Prototype Materials

Paper 17: Statement of technical quality of instructional objectives

Paper 18: The developmental steps for writing materials for modules

Paper 19: The development of teaching learning experiences

Paper 20: Procedural steps for selecting and organizing affective/cognitive skills

Paper 21: Affective/cognitive skills: Criteria for sequencing

TOPIC E: Evaluation, Revision, Recycling

Paper 22: Formulative evaluation plan

Paper 23: Guidelines for evaluating the degree to which an educational product facilitates the implementation of an accountability system

Paper 24: Preliminary evaluation report

TOPIC F: Implementation and Inservice Training

Paper 25: I CAN: Key to Operationalizing the Michigan Accountability Model in Physical Education

Paper 26: Direct service model: Instructional training program based on consumer needs

TOPIC G: Dissemination: USOE Copyright Program

Paper 27: Dissemination plan for commercial publication of the I CAN instructional materials

APPENDIX C: SAMPLE 1973-74 FIELD TEST MATERIALS (RATIONALE AND OBJECTIVES)

1. Aquatics
2. Body Movement
3. Fundamental Skills
4. Health/Fitness

AQUATICS

RATIONALE

Swimming offers an opportunity for the TMR child to develop personal satisfaction and gratification as he masters control of his body in the water. Through active involvement, swimming provides a resource for teaching the retardate, self-concept, vocabulary, independence and safety in and around the water. In addition, development, perceptual-motor, balance and stability and mobility acquisition are common outcomes of a carefully structured aquatics program. Of prime importance, is the fact that swimming provides the retarded with recreational and social group opportunities that carry over into their daily lives. It also allows them an activity to enjoy with the family structure. Not only is swimming a valuable skill in itself, but it is also a necessary prerequisite for safe participation in any water-related activity such as boating, water skiing, fishing, ice skating, etc. Without the ability to move in water and without the knowledge of self-rescue skills, it becomes impossible for the retarded child to participate in activities in and around water without creating a hazardous and dangerous situation for all those involved.

The importance of swimming as a health/fitness activity cannot be overemphasized. Because it involves the movement of all body parts, it is of prime importance in the development of strength, flexibility and coordination. The enjoyment afforded in an aquatic activity such as swimming makes it likely that the child will participate wholeheartedly for long periods of time, therefore providing an excellent contribution to endurance capacities.

The aquatics module includes the best programming points from a number of nationally known aquatics programs for the mentally retarded. It includes basic skills, such as water adjustment, floating, and water entry; the basic strokes such as; finning, human, front and back crawl, and the elementary backstroke. The self resue skills of directional change, survival floating and treading water are also included. These skills provide the necessary prerequisites to acquiring other more advanced aquatics skills. In planning for the use of materials in this module, the teacher should first answer the following questions concerning her students:

What is the child's performance level regarding aquatics?
What are the present needs of the child in regards to aquatics as a socio-leisure activity?
How should the aquatics skills be sequenced in regards to the child's needs?
What kind of game activities can the child participate in so that aquatic skill development is enhanced?

The basic aquatics skills form the foundation for learning how to swim. In acquiring the basic skills, the child learns to overcome fear of water, adjust to the movements of the water, and acquire an adequate level of self confidence. The basic skills also provide a means for the child to develop an understanding of the properties of water and how they affect body activity. These properties include such things as buoyancy, displacement and water pressure. With competence in the basic skills, the child will become less fearful and more confident in acquiring other aquatic skills, thereby, counteracting the internal resistance and slow learning progress which often occurs when tensions caused by fear and anticipation are exaggerated.

The enabling objectives for this performance area were sequenced from simple to complex movement and from stationary to moving positions.

Mental Adjustment to Water

Proper adjustment to the water is important in aiding the child to become accustomed to the water so that aquatics skills can be developed.

Front Float

Prone floating is a necessary prerequisite for the majority of swimming strokes. It is from this body position that the student usually propels himself through the water.

Back Float

The ability to float on the back is a necessity in the performance of many strokes. It is particularly valuable as a basic skill which enables many forms of deep water resting techniques.

Water Entry

The ability to enter the water from a standing position affords the swimmer with an activity that is especially functional. It is also important in terms of safety, in cases when the child may fall or be pushed into the water. Front diving also is a necessity in most competitive swimming events.

The ability to move the body through water in various ways enhances pleasure in aquatic activity and insures alternative methods for safety and self-rescue. In order to perfect the performance of a stroke, it is necessary for the student to devote much time to practice. Once the stroke is learned, the enjoyment which it affords usually causes the child to spend a lot of time in its performance. This process provides the child with an excellent means to develop strength, coordination and endurance. Swimming strokes are the means of locomotion in water just as running, leaping, jumping, hopping, etc., are means of locomotion on land. Locomotor ability in water allows the child to participate in the many game and relay activities associated with aquatics.

The enabling objectives for this performance area were sequenced from actions of body parts (arms and legs) to actions of the total body in performing the strokes.

Finning Stroke
The finning stroke provides the child with a basic arm movement for propelling the body in a back float position. Although it is a very simple movement, it provides the child with a moderately effective means of propulsion.

Human Stroke
Like the finning stroke, the human stroke is a simple natural means of propulsion. Although its merit is always vigorously debated by various aquatic specialists, it is included here as a stroke which is highly appropriate for children who need more immediate gratification in terms of being able to "swim".

Crawl Stroke
The crawl stroke is the constant standard for swimming competence. It is complex but very efficient and functional as a safety and recreational skill. Knowledge of the crawl stroke is also important in that it can become a speed stroke, allowing the child to engage in competitive events.

Back Crawl
The back crawl is similar to the front crawl except in position and breathing. As such, it is an efficient and functional stroke which could be used as an acceptable substitute for the front crawl for children who prefer it for its unique qualities. The back crawl is also a stroke used in competitive swimming events.

Elementary Backstroke
The importance of the elementary backstroke lies mainly in its use as a resting stroke without breathing complication. Knowledge of this stroke provides the child with a means to cover greater distances with less energy.

The self-rescue skills provide the child with several crucial skills appropriate for use when he is tired, when an accident occurs or when an unexpected emergency arises in an aquatic setting. Knowledge of these skills is also important if he is to be included in any water-related activities such as boating, fishing, ice skating, etc., where unexpected accidents are common. The ability to perform self-rescue skills aids in the development of the child's self-confidence and in the confidence of others in the child's ability to handle himself in emergency situations.

The enabling objectives for this performance area were sequenced from simple-complex and from actions of body parts to total body actions.

Changing Directions and Positions

In learning to change direction and body position in water, the child gains the skills necessary to change from one skill or stroke to another in deep water. This also provides the child with a safety skill when an accident, such as falling unexpectedly into the water, occurs so that he may correctly position himself prior to using another rescue skill or stroke.

Survival Float

The survival float is a skill which allows the non-swimmer to breathe and float comfortably when he unexpectedly finds himself in deep water. This skill must be performed until help comes. Also, the skilled swimmer may use the survival float in cases where he needs to rest and cannot complete a long swim to safety.

Treading Water

The ability to tread water provides a means of keeping the head above water (in deep water) with little expenditure of energy. While treading water involves more energy than the survival float, it provides for communication and visual contact with potential assistance. It is also a skill very useful for engaging in other aquatics games and activities.

Basic Skills

1. Mental Adjustment to Water
    - 1.1 move body through water
    - 1.2 hold breath under water
    - 1.3 bob
    - 1.4 establish bouyancy

2. Functional Front Float with Kick
    - 2.1 prone float
    - 2.2 prone float with kick

3. Functional Back Float with Kick
    - 3.1 back float
    - 3.2 back float with kick

4. Functional Water Entry Ability
    - 4.1 slide into water
    - 4.2 jump into water
    - 4.3 front dive

Strokes

5. Functional Finning Stroke
    - 5.1 finning arm action
    - 5.2 finning stroke

6. Functional Human Stroke
    - 6.1 human stroke
    - 6.2 breathe rhythmically
    - 6.3 human stroke

7. Functional Crawl Stroke
    - 7.1 arm action
    - 7.2 breathe rhythmically
    - 7.3 crawl stroke

8. Functional Back Crawl Stroke
    - 8.1 arm action
    - 8.2 back crawl

9. Functional Elementary Backstroke
    - 9.1 arm stroke
    - 9.2 wedge kick
    - 9.3 elementary backstroke

Self Rescue Skills

10. Change Directions and Positions
    - 10.1 horizontal turns
    - 10.2 change position
    - 10.3 change direction

11. Functional Survival Float
    - 11.1 vertical float
    - 11.2 breathing
    - 11.3 arm action
    - 11.4 leg action
    - 11.5 deep water floating

12. Functional Treading Water
    - 12.1 arm action
    - 12.2 kick
    - 12.3 deep water treading

The goal of physical education is to enhance those characteristics which lead the TMI child to experiencing all that life has to offer. The field of physical education is primarily concerned with developing the motoric characteristics of human behavior. In turn, these characteristics do not exist as distinct entities; rather they interact with cognitive and affective characteristics throughout life. Research has shown this to be true particularly in infant and early childhood developmental learnings.

It is generally accepted that a child's first learning experiences are motoric. He learns about himself and his environment by experiencing it physically. The body and body movements become focal points for any consistent environmental orientation. Body image aids the child in locating himself with relation to his environment, and is the foundation of perceptual-motor development. Essential to the body image concepts are the concepts of laterality (right/left), directionality, postures, and balances.

In a very real sense, a TMI child's motor experiences set the limits as to amount and quality of learning that is possible, whether it be cognitive, affective, or psychomotor. Most TMI children will not be able to take advantage of "incidental learnings" available in the environment. He will need help in acquiring these learnings. Most important, he will need practice with motoric experiences if he is to reach a stage of normalcy, and his level of potential. All early training, therefore, should be oriented toward developing to the highest possible level of the child's body management proficiency related to perceptual-motor development, balance, stability and postures.

The importance of sensory motor experiences (tactual, visual-motor, auditory, kinesthetic, manipulative) as learning channels, has been recognized since the 19th century when Jean Itard and Edouard Sequin pioneered in the education of the special child. In Rome, Maria Montessori was guided by the works of these two pioneers as she devised materials for the education of retarded children. In her Handbook, she states that a child must establish motor and sensory functions in order to lay the groundwork for intelligence.

Recently, the theory that movement is basic to the development of thought processes, language, and other general learning processes, has been advanced by Piaget, Delacato, Kephart, Getman, Frostig, and others. Piaget, in his study of infants, theorized that thought derived from a child's actions and movements. He, therefore, revised his testing technique so that manipulation supplemented by language was used, rather than language alone. Godfrey and Kephart (1969) state that physical education must be thought of as a foundation for the more complex learnings in the classroom. It is an important part of the entire educational process and should be considered closely related to all educational endeavors. In relation to this, Frostig (1970) states that the teacher must not be concerned with movement alone, but also the sensory and perceptual experiences that accompany movement. These include the auditory, visual, tactile, and kinesthetic stimuli which are fundamental to all learnings.

In general, research studies have shown that if children are encouraged to think about the movement activities they engage in, they will think more efficiently in all learning activities. To date, evidence has not clearly indicated the unique role of movement as a distinct entity, but collectively, one may infer that successful movement experiences may enable the child to function at his most efficient level of performance by providing:

- success through play (enhancing self-concept for all developmental tasks)
- multi-media sensory-motor-learning (developing perceptual-motor skills)
- a wholistic concept to man's development.

The body management module contains not only the elements necessary for the TMI's motor, cognitive and affective development through student-centered activity programs, but also those necessary for associated learnings in other subject areas (art, numbers, language, music, and self-help skills). This module is designed specifically as a foundation for sensory motor learning and environmental interaction. The selection of the gross motor elements was based on these sets of criteria:

- perceptual-motor development
- balance and stability acquisition
- generalized mobility acquisition.

Such criteria encompass body awareness, directionality-laterality, spatial awareness, and body balances. Unfortunately, there is a sparcity of research concerning the perceptual-motor characteristics of the retardate (Cratty). However, while the state of present knowledge is limited, the TMI child's need for a structured program of gross motor-sensory activities for acquisition of body management skills is clearly apparent if he is to have "equal opportunity" to the many avenues of learning to enable him to function at his most efficient level of performance - cognitively, affectively and motorically.

The body management module has built into it a functional vocabulary which can be acquired by the child as he participates in the activities suggested in the module. This vocabulary includes:

Fundamental Motor Concepts to be Learned and Experienced

Motor Skills

curl - stretch
swing - sway
twist - turn
bend - extend (straighten)
push - pull
lift - lower
hold - carry
fall - collapse

walk
jump
skip
slide
fall
catch
roll

run
hop
gallop
dodge
throw
strike
leap

Spatial

front-back-side
upper-lower
right-left-side
curved-straight-zig-zag
wide-narrow
flat-round

forward-backward-sideways
up-down
high-low
big (large) - small (little)
long-short

circle-square-triangle
front-back-behind
toward-away
near-far
over-under-through
above-below

Time/Force

fast-slow
speed up-slow down
strong-weak
heavy-light
soft-hard

Body Parts

- body
  - head
  - trunk
  - arms
  - legs
- trunk
  - shoulders
  - hips
  - seat
  - back
  - chest
  - stomach
- arms
  - elbows
  - hands
  - fingers
- legs
  - knees
  - ankles
  - feet
  - heels
  - toes

Questions to be Answered by the Teacher

In planning for the use of materials in this module, the teacher should first answer the following questions:

> What is the child's performance level in both management (self, environment, postures, balances)?
>
> What kind of game activities can the child participate in so that his body management is enhanced?

How can these activities be used in order to encourage the child to become aware of self, environment, postures and balances?

How can the body management module be used to enhance the child's classroom learnings (art, numbers, language, music and self-help skills)?

What are the present needs of the child regarding classroom activities?

Body awareness defines the child's understanding of his physical self. It bears a clear relationship to body image and consequently is an extremely important curricular component for all learnings, i.e. "learning to learn". The body image is the focal point for any consistent spatial orientation, namely, locating the self and other objects or people in space. Laterality (internalized awareness of right and left) and directionality (sense of right and left projected into space) are important components for generalized mobility as well as effective movement. Essential to the acquisition of these concepts is the kinesthetic reinforcement of moving body parts and total body actions as one acquires generalized mobility and stability.

The enabling objectives for this performance area were sequenced from simple to complex identifications and relationships of body structures.

The performance objectives include:

Body Actions

The movement experiences incorporated into this objective provide the learner with an understanding of the "mobility potential" of the human body. The child must internalize this concept before he is ready to learn to apply the more specific action requirements of a given skill.

Body Parts

The acquisition of specific motor skill begins with awareness of body parts. These skills are acquired most effectively when the learner has gained awareness of body parts in moving, manipulation, and maintaining bodily balances.

Body Areas

Knowledge of the areas of the body (front, back, side) is the first step in the development of the concept of directionality in space. The sense of right and left, as projected into space (directionality) is the immediate goal. Directionality provides the foundation for acquiring the concept of laterality (awareness of right and left). These perceptual concepts are essential to effective functioning and development of reading, number and language skills.

Orientation of one's self in space and visual discrimination of color, form, shape and symbols encompassing body movements, provides the body management skills necessary for efficiently perceiving and adequately interpreting one's environment. For our purposes, this can be defined as the relationship of objects in space to one's own body and body movements. The development of figure-ground and parts of the whole relevant to color, form and symbol matching are important skills for reading and number readiness as well as generalized mobility and stability.

The enabling objectives for this performance area were sequenced from spatial relationships involving self to those involving other objects or people.

The performance objectives include:

Shapes and Sizes

In most activities the child either manipulates, creates, or structures movement into various shapes and sizes. Learning to identify sizes and shapes through movement is important in the acquisition of motor skills and in the participation in game and play activities.

Spatial Direction

The development of laterality and directionality are important perceptual skills for effective movement (generalized mobility) as well as structured game participation. Such skills are necessary for the acquisition of other cognitive skills such as reading, numbers, and readiness to learn.

Personal and General Space

Social interaction and efficiency of movement require an awareness of one's own personal space and general space. Acquisition of these are important aides in all movment and game activity groups.

Posture is a powerful characteristic of all children because it conveys a wealth of information at a single glance. It can reflect the child's self concept, personal health or mood. If peer and adult acceptance is a valid goal, it then becomes important that the TMI child's posture connotes a positive sex image and a vigorous enthusiasm for life. Good posture is also necessary for proper organ functioning and elimination of fatigue.

Static Postures

Static postures require that the individual maintain body alignment under conditions of non-movement. Many times this posture contributes to the way in which an observer perceives the child. If one believes in "normalizing" the mentally retarded, it becomes evident that it is highly desirable to develop acceptable basic posture.

Dynamic Postures

Dynamic posture carries the same rationale as static posture but it is more difficult to develop since the individual is moving. At the same time, it is worth the additional efforts required to develop these skills since they comprise the majority of the life style of the child.

Body Alignment in Work Tasks

The learner should acquire sound postural skills in pulling, pushing, holding, carrying, etc., because all of these tasks are inherent to most daily living and some vocational skills in which TMI's engage.

Controlling the Body
Body control refers to one's capacity to coordinate his total body movements under a given condition. Such control is the product of opportunities to move under a variety of conditions. In turn, these experiences contribute to the learner's awareness of himself and of his movement potential. The ability to control the body is especially important in creating a positive self concept and a feeling of confidence. These attributes are a necessary prerequisite to success in other physical, cognitive, and daily living activities.

Rotations
Body rotations provide opportunities to experience the feeling of the body rotating in space. This can be an exciting and aesthetically rewarding experience but it is not usually encountered in the home or community. Thus, this portion of the curriculum is extremely important because it may be unique for many children.

Upright Balances
Upright balance is a prerequisite for simply living in the world. The child and the adult must be capable of maintaining upright posture just to move through the environment. This general ability will be enhanced by experiencing the challenges of three point, two point and one point balances.

Dynamic Balances
Dynamic balance refers to the maintenance of the center of gravity over a moving base of support. The acquisition of this skill is paramount because most motor activities require that the participant move and in order to do so efficiently, he must have a well defined sense of dynamic balance.

Climbing
Climbing skills are somewhat unique because they provide opportunities to become semi-suspended in space. The learner does not have the security of a broad contact surface but neither is he totally suspended. Thus, these kinds of experiences provide variety and, therefore, increase motivation along with the development of strength and body awareness.

BODY MANAGEMENT

PERFORMANCE OBJECTIVES OUTLINE

Body Awareness

1. Body Actions
    - 1.1 total body actions
    - 1.2 actions of body parts

2. Body Parts
    - 2.1 individual body parts
    - 2.2 body parts in combination

3. Body Areas
    - 3.1 body areas in relation to self
    - 3.2 body areas in relation to objects

Awareness of Environment

4. Shapes and Sizes
    - 4.1 changing body parts
    - 4.2 pathways

5. Spatial Directions
    - 5.1 direction in relation to self
    - 5.2 directions in relation to objects

6. Personal and General Space
    - 6.1 personal space
    - 6.2 general space

Awareness of Body Postures

7. Static Body Postures
    - 7.1 postures
    - 7.2 standing
    - 7.3 sitting

8. Dynamic Body Postures
    - 8.1 walking
    - 8.2 sitting down
    - 8.3 ascending stairs
    - 8.4 descending stairs

9. Pulling, Pushing and Turning
    - 9.1 pulling
    - 9.2 pushing
    - 9.3 turning
    - 9.4 different surfaces

10. Transporting Objects
    - 10.1 holding or carrying
    - 10.2 lifting
    - 10.3 lowering or replacing

Controlling the Body

11. Total Body Rotations
    - 11.1 log roll
    - 11.2 front roll
    - 11.3 back roll

12. Static Upright Body Balances
    - 12.1 three-point balances
    - 12.2 two-point balances
    - 12.3 one-point balances

13. Static Inverted Body Balances
    - 13.1 three-point balances
    - 13.2 two-point balances

14. Dynamic Body Balances
    - 14.1 moving forward and sideways
    - 14.2 raising and lowering body
    - 14.3 turning and changing direction
    - 14.4 dynamic balance on trampoline

15. Climbing
    - 15.1 mature ladder climbing
    - 15.2 traveling on horizontal ladder
    - 15.3 traveling on vertical rope

The learning of fundamental skills forms the foundation for all other motor skill learning. These fundamental skills provide a base for the acquisition of skills necessary for socio-leisure, daily living and vocational tasks. The ability to engage in individual or g oup play activities is dependent on the knowledge of fundamental skills. For example, a child cannot participate in a simple game such as dodgeball if he cannot run and throw. He fails among a group playing "Farmer in the Dell" if he has no concept of rhythms. For the elementary school child, active play is a prime socializing agent and leisure time activity. Without fundamental skills, the young child is a failure in these important social and leisure skills.

The performance of daily living tasks is also dependent on a knowledge of fundamental skills. Although not specific to most everyday tasks, these skills are gross motor prerequisites to fine motor skills such as dressing, sewing, and hammering. Fundamental skills enhance the basic stability and mobility components necessary for these tasks.

Participation in pre-vocational and vocational tasks is also dependent on a knowledge of fundamental skills. For example, an apprentice carpenter would have difficulty with the skill of hammering a nail without the knowledge of an overhand striking pattern. Also, an assembly-line worker's efficiency would be enhanced if he had some "feel" for rhythmics. Again, although not specific to the task, fundamental skills provide the necessary foundation for success in performance.

Although of great value to all children, fundamental skills are especially important in enhancing the quality of life of the TMI. Through research comparing normal and retarded individuals, it can be concluded that the retarded child is from two to four years behind the normal child in motor performance (Howe, 1959; Francis and Rarick, 1959; Keogh, 1968; Lillie, 1968). While normal children seem to "instinctively" learn the basic skills involved in play activities, the retarded child needs to be "taught" many of these skills. Because of a lack of research in this area, we do not know the potential performance level of the TMI child. It is, therefore, important that educators develop a fundamental skills base, with the hope that it will provide the foundation for the TMI child to reach this potential performance level. Also, in developing these skills, the TMI child will gain the important elements of play which allow him to interact socially with his family and peers. In relation to this, researchers have found that retarded individuals tend to have unrealistic self-concepts (Piers, et. al., 1964; Fine, et. al., 1967; Guthrie, et. al., 1967; Gardner, et. al., 1969). They also do not feel confident in social interactions. It has also been found that engaging in physical activity enhances self-concept (Johnson, et. al., 1968). A healthy self-concept and feelings of confidence are important ingredients for a successful and happy life. Without these, success in social relations, vocational tasks and leisure activities is impossible.

The value of fundamental skills in the pre-vocational and vocational training of the TMI cannot be overestimated. Success in these types of tasks is dependent on physical abilities. Without the underlying fundamental skills, the ability to perform work tasks cannot be developed.

The fundamental skills module forms the basis for subsequent learnings in the I CAN curriculum. The pre-entry level of proficiency which is considered prerequisite to acquiring all fundamental skills includes two components. These are stability and mobility. In planning for the use of materials in this module, the teacher should first answer the following questions concerning her students:

- What is the child's performance level regarding fundamental skills?
- What are the present needs of the child regarding socio-leisure and daily living activities?
- What are the future needs of the child regarding socio-leisure, daily living and vocational activities?
- What are the priorities in the fundamental skills module, according to the child's needs?
- What kind of game activities can the child participate in so that fundamental skill development is enhanced?

It is suggested that the following priorities be given in each performance area:

Locomotor Skills

- Run
- Vertical Jump
- Horizontal Jump

Object Control

- Underhand Throw
- Overhand Throw
- Catch

Rhythmic Skills

- Movements to an Even Beat
- Movements to an Uneven Beat

The locomotor skills contribute to the child's ability to move efficiently through space. Their primary developmental contribution is to muscular strength, body endurance, speed, balance, agility and total body coordination. These important components are considered by many to underlie successful performance in work and play activities.

The enabling objectives for this performance area were sequenced as follows:

- mature pattern
- speed
- accuracy (body maneuvers)

The performance objectives include:

Run

Running is probably the most widely used fundamental skill It is a tremendous aid in the development of strength, agility, total body coordination and endurance. It also is employed in most team and many individual sports.

Leap

The leap is most often used in rhythmics, gymnastics, and track/field events. It develops strength, agility, total body coordination and dynamic balance.

Jump

The vertical and horizontal jumps are required in track/field and gymnastics. These skills contribute to the development of strength, agility, dynamic balance and total body coordination.

Hop

Hopping is used in some team games, track/field, gymnastics and rhythmics. It makes a unique contribution to the development of balance since it demands that the child keep the center of gravity over a small, moving base of support.

Gallop

The gallop is not required for participation in many later activities and, consequently, may not be stressed. However, it contributes to the development of strength, dynamic balance and total body coordination. It may also be useful to use this skill as a motivator because it has a strong appeal for children.

Slide

The slide is used in many rhythmic activities and in team sports which require that the performer move rapidly to the right or left. Its contribution to the development of strength, dynamic balance, and total body coordination make it a significant activity for the curriculum. Its unique feature is that it appears to be a relatively easy skill to master.

Skip

Skipping is used most in rhythmics and low organized games. It aids in the development of strength, dynamic balance and coordination.

The object control skills are prerequisite to successful participation in most team and many individual sports. The development of object control skills also forms the basis for the skills necessary for prevocational and vocational tasks. Therefore, they are extremely important in preparation for adult life. The primary development contribution of object control skills is to strength, flexibility, balance, total body coordination, eye-hand coordination, and eye-hand-foot coordination.

The enabling objectives for this performance area were sequenced as follows:

- mature pattern
- accuracy

The performance objectives include:

Underhand Roll and Underhand Throw

The underhand roll and throw develop a basic underhand pattern which is subsequently useful in many team and individual activities. These skills develop strength, balance and eye-hand coordination.

Overhand Throw

The overhand throw is used in many sport and game activities. It aids in the development of strength, balance and eye-hand coordination.

Kick

Kicking skills are required for successful participation in selected team sports. Development of this skill contributes to strength, balance and eye-foot coordination.

Bounce

Bouncing is employed in some team games and in many playground games. Its basic contribution is to eye-hand coordination and balance.

Catch

Catching skill is required in most of the team sports. It is a relatively difficult task because it demands that the performer track a moving object and position his body so that he is able to intercept the object in time and space. Consequently, this skill makes a unique contribution to the synthesis of dynamic balance, spatial awareness and eye-hand coordination.

Striking

The varieties of striking patterns are used extensively in team and individual sports. They develop strength, flexibility, balance and all forms of coordination.

Rhythmic skills develop coordination, body control, and balance. They teach the child the ability to function in play activities through better physical coordination and body development. They form a basis for future work skills, which require the repetition of patterns in specific tasks. In addition, rhythmic activities enhance language development by encouraging self-expression and communication. Not only does this aid in verbal language development, but it also provides a non-verbal means of expression for those lacking verbal language. The enabling objectives for this performance area were sequenced as follows:

Rhythm	Imitation	Communication
- beat	- common objects	- feelings
- musical form		- gestures
- combination		

The performance objectives include:

Beat, Accent, and Phrasing
These rhythmic activities enhance responses to stimuli and encourage the child to listen, to feel, to act, and to move. They also enhance social acceptance by giving the child resources for participation in songs and dances in socio-leisure settings.

Imitation
Imitation provides the child with an easy way to learn new movement. It allows a child to mimic the movement, idea or design, but does not limit his movement in time or space. Also, it broadens the child's movement vocabulary in relation to rhythms and dance.

Communication and Self-Expression
These skills provide the child with non-verbal means of self-expression and communication. This is especially valuable since verbal expression may be limited. It also aids in the development of verbal language.

FUNDAMENTAL SKILLS

PERFORMANCE OBJECTIVES OUTLINE

Locomotor Skills

1. Functional Run
   - 1.1 mature run
   - 1.2 mature run with pacing
   - 1.3 mature run around obstacles
2. Functional Leap
   - 2.1 mature leap
   - 2.2 mature leap over obstacles
3. Functional Horizontal Jump
   - 3.1 mature horizontal jump
   - 3.2 mature horizontal jump with running approach
4. Functional Vertical Jump
   - 4.1 mature vertical jump
   - 4.2 mature vertical jump with running approach
5. Functional Hop
   - 5.1 mature hop
   - 5.2 mature hop with changing speed
   - 5.3 mature hop around obstacles
6. Functional Gallop
   - 6.1 mature gallop
   - 6.2 mature gallop with changing speed
   - 6.3 mature gallop around obstacles
7. Functional Slide
   - 7.1 mature slide
   - 7.2 mature slide with changing speed
   - 7.3 mature slide around obstacles
8. Functional Skip
   - 8.1 mature skip
   - 8.2 mature skip with changing speed
   - 8.3 mature skip around obstacles

Object Control

9. Functional Underhand Roll
   - 9.1 mature underhand roll
   - 9.2 mature underhand roll with accuracy
10. Functional Underhand Throw
    - 10.1 mature underhand throw
    - 10.2 mature underhand throw with accuracy
11. Functional Overhand Throw
    - 11.1 mature overhand throw
    - 11.2 mature overhand throw with accuracy
12. Functional Kick
    - 12.1 mature kick
    - 12.2 mature kick with accuracy and running approach
13. Functional Continuous Bounce
    - 13.1 mature bounce
    - 13.2 mature bounce while running
    - 13.3 mature bounce with accuracy
14. Functional Catch
    - 14.1 mature catch
    - 14.2 mature catch with accuracy
15. Functional Underhand Strike
    - 15.1 mature underhand strike with hand
    - 15.2 mature underhand strike with paddle
    - 15.3 mature underhand strike with accuracy
16. Functional Overhead Strike
    - 16.1 mature overhead strike with hand
    - 16.2 mature overhead strike with a short paddle
    - 16.3 mature overhead strike with accuracy

Object Control Continued

17. Functional Forehand Strike
    - 17.1 mature forehand strike with hand
    - 17.2 mature forehand strike with paddle
    - 17.3 mature forehand strike with accuracy

18. Functional Backhand Strike
    - 18.1 mature backhand strike with paddle
    - 18.2 mature backhand strike with accuracy

19. Functional Two-Handed Sidearm Strike
    - 19.1 mature two-handed strike
    - 19.2 mature two-handed strike with accuracy

Rhythmic Skills

20. Functional Movements to an Even Beat
    - 20.1 movement to an even drum beat
    - 20.2 movement to an even musical beat
    - 20.3 combined movement to an even beat

21. Functional Movements to an Uneven Beat
    - 21.1 movement to an uneven drum beat
    - 21.2 movement to an uneven musical beat
    - 21.3 combined movement to an uneven beat

22. Accent and Phrasing
    - 22.1 movement in relation to rhythmic accent
    - 22.2 movement in relation to rhythmic phrasing

23. Imitate Movements
    - 23.1 common objects

24. Communication
    - 24.1 feelings
    - 24.2 gestures

HEALTH/FITNESS

RATIONALE

It is our belief that health and fitness cannot be separated. In order to make this position tenable, we must expand the concept of physical fitness so that it allows for individual differences. At any moment in life an individual exists on a point along a "health and fitness continuum". This position may be determined by such hereditary and environmental factors as disease, accident, traumatic emotional experience, suitable diet or useful exercise program. While some of these factors are controllable, and others are not, an individual's position on the continuum represents his state of health and level of fitness.

While physical fitness has come to mean a variety of things and lacks a clear-cut definition, a number of situations have been associated with the concept. Generally, a physically fit individual can be said to be free from disability and disease; to be able to perform prolonged work and meet the physical demands of daily routine. A minimal functional level of fitness can be defined as the ability to respond to typical daily routines in a normal, effective way. This minimal level should include not only physical factors, but, also, social and psychological components. On the other hand, optimal functional fitness is attained when an individual can perform an optimal short-term or near optimal long-term effort without negative physical or psychological effects. While athletic ability is not prerequisite to optimal fitness, reaching an optimal fitness level provides the individual with the basis for successful participation in sports and socio-leisure activities.

While there has been much disagreement among experts as to what physical fitness encompasses, most agree that the physical fitness parameters of a test should be separate from the motor performance parameters. While the line between these categories is often fine, the physical fitness components are those actually essential for health and functional fitness. These include strength and muscular endurance, heart/lung endurance, and flexibility (see Figure 1).

Physical activity can be considered to be as essential to good health as rest, food and emotional well-being. While there is little positive evidence that exercise effects longevity, we do know that exercise has certain positive effects on health and body functioning. These include:

- The muscle tone in the arms and the legs resulting from regular exercise improves circulation of blood in the veins.

- Unused muscles also make clotting in the veins more likely.

- Along with the improvement of skeletal muscle tone, exercise improves the tone of the diaphragm, which results in the more efficient functioning of the lungs and heart.

Health/Fitness Components	Motor Performance Components
Strength	Coordination
Muscular Endurance	Endurance
Heart/Lung Endurance	Power
Flexibility	Balance
	Speed
	Reaction Time

Figure 1. Health/fitness vs. motor performance

- The smaller blood vessels function more efficiently with regular exercise.

- The beneficial effects of exercise may mean the difference between life and death when an accident or illness occurs.

- Digestion, bowel function and sleep are improved by exercise.

- Exercise has a positive effect on the nervous system helps in counteracting stress and strain.

In relation to the above, activity has a great positive effect on the process of "growing up". It aids in bone growth and muscle development. Also, a planned exercise program contributes to the control on weight, along with improved organic functioning. Each student should have a personal health and fitness program designed for his needs in terms of height, weight, sex, socio-leisure skills and health. This program should include specific activities, food portions, and amounts of rest, which together create a healthy energy balance for the child. Specific fitness activities and exercises must be prescribed for fitness components where minimal criteria in terms of age and sex have not been met.

The awareness of individual differences in terms of maturity, body type, and body size, is important in determining the child's capabilities, even though these traits are not subject to appreciable improvement through exercise. Students must be oriented to the need of exercise as a way of life in attaining and maintaining total effectiveness. Traits which can be improved through exercise include the fitness components of strength/muscular endurance, heart/lung endurance and flexibility.

Although there is much disagreement as to what constitutes fitness and how it should be measured, most researchers agree that retarded individucals are inferior to normal individuals when compared on fitness indexes which usually included motor and organic components (Campbell, 1973). For this reason, it is especially important that the development of optimal fitness be a major goal in activity programs for the retarded. Being "physically fit" is a necessity in the performance of not only daily living and work tasks, but also socio-leisure activities. Therefore, the development of fitness is an important aspect in helping the retarded individual enter the "mainstream" of society and becoming a more independent and accepted individual.

In planning and instituting a fitness program for the mentally retarded, it is important that the teacher understand some "facts" about fitness and exercise. These "facts" include the following (Hayden, 1964; Wessel, 1970):

a. All activities do not have the same benefits in terms of fitness. Some are most valuable in the development of strength and endurance, while others may have flexibility as their major area of development. Also, activities may be specific to certain body parts.

b. Exercise requires gradual progressive "overload" in order to produce the desired fitness effects. In order to accomplish this, the demands or intensity of the workload must be progressively increased in terms of amount of resistance, rate of work, duration of work and duration of rest intervals. (The concept of "overload" is covered more thoroughly later in this Module.)

c. In order to produce benefits, exercises must be repeated regularly. Regularity (frequent short periods of physical activity at desired levels of intensity) is more beneficial to continued improvement than infrequent periods of longer duration. Improvements are lost rapidly when exercise is neglected.

d. Play periods which are casual and basically skill-oriented, contribute little to the development of physical fitness. Physical improvement cannot occur without physical stress.

e. Exercise programs should be planned according to the needs of the individual student. The importance of careful record-keeping cannot be over-emphasized as a means to individualize instruction and recognize improvement.

f. Exercise adaptations are a lifelong possibility. While exercise benefits are not a panacea for all aging effects, they are valuable tools for emotional release, improved performance capacities, greater efficiency, feelings of well-being and refreshment, and relaxation and pleasure.

In order to aid in the understanding of weight control, growth, and physical activity, it is important that the teacher relate to the students the concept of height, weight and body types. Along with this, the importance of food, rest, and activity as they relate to growth, need to be conveyed to the students. The knowledge of these basic concepts is necessary to the understanding of activity and energy as they relate to maintenance of desirable body weight.

The Health/Fitness Module contains the exercises and activities basic to the development of physical fitness and the control of body weight. In planning for the use of materials in this Module, the teachers should first answer the following questions concerning her students:

What is the child's performance level regarding health/fitness? (see included charts)

What are the present health/fitness needs of the child regarding socio-leisure and daily living skills?

What are the future health/fitness needs of the child regarding socio-leisure, daily living, and vocational activities?

What are the needs of the child in terms of the weight control and diet?

What are the priorities in the health/fitness module, according to the child's needs?

What kind of game activities can the child participate in so that health/fitness is enhanced?

Need

Physical fitness is an important aspect in the lives of all individuals. It provides the basis for participation in all daily living and work activities. With the attainment of the appropriate levels of fitness, the fundamental skills of sports and leisure activities can be engaged in with confidence and pleasure. Each individual can experience success and enjoy vigorous exercise appropriate to age, sex, and ability, as well as enhance health. The physical fitness skills included in this module are designed to provide each student with the opportunity to develop optimal levels of strength/muscular endurance, heart/lung endurance, flexibility and relaxation, which are important to general well being.

A strong program related to physical fitness is especially important to the TMI student. Since research studies have shown retarded children to have lower levels of fitness than normal children, the need of fitness activities cannot be over-emphasized. In accordance with our prime goal of developing socio-leisure and work competencies in the retarded individual, the development of optimal fitness serves as the basis to this goal. Being "physically fit" allows the individual to participate in sports and games, and work successfully without undue fatigue. The fit individual also has the reserves to meet unexpected energy needs when emergencies arise. Along with the development of physical fitness, we are also enhancing physical health, emotional stability, and the ability to participate in active social interactions. All of these factors contribute to the general well-being and happiness of the TMI child.

The selection of fitness activities is based on the needs of the TMI child, according to the fitness components of strength and muscular endurance, heart/lung endurance, flexibility and relaxation. The activities chosen should not only include basic fitness exercises, but also include work and play activities in the home/school/community. Suggested activities of this sort are found in the teaching/learning activities for each fitness component. Game activities from the Body Management, Fundamental Skills and Aquatics Modules are also included and coded according to the fitness components which they can best develop.

The enabling objectives for this performance area were sequenced as follows:

- performance of the basic exercises for the fitness components
- performance of the basic exercise in a test or competitive situation
- development of an appropriate level of fitness
- maintenance of the level of fitness

Abdominal Strength and Muscular Endurance

An appropriate level of abdominal strength and muscular endurance is necessary for the performance of most total body movements used in daily living and socio-leisure activities. This fitness component is especially important to the performance of most aquatic activities and to the maintenance of proper posture.

Arm/Shoulder/Chest Strength and Muscular Endurance

Upper body strength is a necessity in the performance of most motor skills involving the control of objects, such as throwing, bouncing, catching and striking. These skills are used in many sports and leisure activities. Other daily living activities which use arm/shoulder/chest strength include such things as: carrying, lifting, pushing and pulling.

Stamina and Heart/Lung Endurance

The ability of the cardio-respiratory system to sustain physical activity is necessary in any situation in which activity is conducted for long periods of time. Stamina delays fatique and allows sustained activity. This is especially important in the participation in games and sports events. It is also necessary for active play and leisure activities such as running, swimming, skating, biking and skiing.

Trunk/Leg Flexibility

Most locomotor skills are dependent upon trunk/leg flexibility. These include such things as skipping, galloping, hopping, jumping and climbing. Again, these are necessary for participation in other sporting events. Flexibility is also necessary for gymnastic activities.

Relaxation

The ability to relax cannot be over-emphasized. With the release of tension goes a sense of peace and well-being, which contributes to emotional stability.

Basic Conditioning Program

This program allows the student to combine all of the fitness components (strength and muscular endurance, heart/lung endurance, flexibility and relaxation) so that he may become a totally fit individual.

Progressive Overload

Exercise, work, workload, and energy expenditure are synonymous in the physiological sense. By expending energy, the physiological processes become elevated in response to increased demands placed upon the cells, tissues, organs, and systems of the body. In order for improvements to occur, these demands must be greater than those usually encountered in day-by-day living. Overload may be defined as any demand, or resistance, that exceeds those levels ordinarily experienced in daily life. This phenomenon of the body adapting to the demands or stress placed upon it is known as the Law of Use and Disuse: function begets function. The present level of physical performance (body shape, function, and control) merely reflects the specific adaptations made to the level of physical activity (amount and kind) habitually required in work and leisure. Increased physical activity of the right kind and amount will bring about improvements in the range of joint motion, strength, tone, size, and endurance of skeletal muscles, and give the cardiovascular-respiratory system the ability to sustain physical stress without undue fatigue. Inactivity produces the opposite effects: a decrease in range of joint motion; a lack of tone, strength, and endurance of the skeletal muscles, along with atrophy (wasting) of these muscles; and a decline in the efficiency of the cardiovascular-respiratory system.

The primary focus of a training program is to produce physical and physiological changes that improve strength and muscular endurance, stamina and heart/lung endurance and flexibility. To accomplish this, the student should progressively increase the demands or intensity of the overload (workload) by increasing the:

- Amount of resistance (lift heavier loads or apply greater force);
- Rate of work (perform the exercise in a shorter period of time);
- Duration of work (lengthen the work period while maintaining rate of work);
- Duration of rest intervals (shorten the rest periods or the time between defined exercise).

The rate of improvement is directly related to the intensity of the workload. This means that the closer the overload is to maximum, the faster the rate of improvement. Overload, however, should be applied gradually; it takes time for the body to adapt without excessive muscle soreness or fatique. Some general principles related to the concept of overload follow.

In order for improvement to occur demands must be placed on the body that are greater than those usually encountered (overload).

The type of overload may be: amount of resistance, rate of movement, duration of work or rest intervals.

The nearer the intensity of the overload is to maximum, the faster the rate of improvement.

Progressive overload is the key that permits the body time to adapt to increased demands without excessive muscle soreness or fatigue.

A Progressive Overload Score Sheet is included for each test/competitive exercise found in this module. Each score sheet contains the exercise description, spaces for student names, and boxes for each week of a 12-week period. Also, each score sheet contains a suggested overload for that exercise. The overload may be in terms of repetition and/or time. In using the score sheet, the teacher should record the student's score for each week until he reaches minimal performance criterion. The date at which criterion is reached should also be recorded.

There are several alternative methods by which the student can reach his appropriate level of performance for each fitness component (strength/muscular endurance, heart/lung endurance and flexibility). Those methods relating to the specific components are dealth with in the TLAs in terms of calesthenics and home/school/community activities. Those related to general training techniques encompassing all components are found in the section entitled Game/Training Activities. These alternative training techniques include: circuit training and weight training. The Game/Training Activities section also contains charts summarizing the calesthenics and home/school/community activities described in the TLAs.

Standards of Performance

A set of standards for the performance of exercises in each fitness component (strength/muscular endurance, heart/lung endurance and flexibility) are included with the TLAs for that particular component. These standards are in terms of age and sex.

They were derived from available data for mentally retarded children. Where no data for the mentally retarded was available, data representative of developmental levels of performance for children and youth are presented. A composite chart of all these standards of performance is found in the Developmental Inventory.

Criterion Reference Measures of Performance

Criterion-referenced testing is embedded in the curriculum materials of I CAN, namely, the focal points of activity for each enabling objective. Data gathered with these measures will provide the teacher, student, and parent with a reliable guide for levels of performance and continuous progress through physical education individualized instruction. From this standpoint, criterion referenced measures of performance become diagnostic testing tools with evaluative/prescriptive teaching. Thus, performance physical/fitness criteria resides within the I CAN materials and not outside the curriculum or program. Testing becomes a diagnostic/prescriptive tool for the teacher and not some "outside the classroom" testing tool.

This performance area, Moving and Growing, encompasses the activities and concepts related to body size, body growth, and weight control. There is a need for all children to be aware of the "self" and how it grows and changes in physical ways. The concepts of weight, height and body type must be learned as a basis to the understanding of growth changes and weight control. Also, a knowledge of growth needs, in terms of rest, food, and activity, is important so that the child may be more self-directed in his selection of activities, choice of food and need for rest. In this way he may be self-sufficient in determining his own health. Because the mentally impaired child tends to be more overweight, due to a higher fat accumulation, it is important that he understand and be self-directed in food selection so that his caloric intake is balanced with caloric outgo (through activity). Balancing activity (or energy output) with food (or energy input) is the key to weight control and health. Both the child's physical and emotional well-being is enhanced through good eating habits, regular physical activity and proper weight maintenance.

Importance of Associated Learning

It is important that learning in the area of activity and health be associated with concepts from such curriculum areas as self-help, nutrition, and science. The content found in the performance objectives for activity and health from the I CAN curriculum could be used to develop mini-courses or learning packets, which in turn could be used in many areas of the curriculum in relation to activity and growth, activity and health, and controlling body weight. For example, students who have difficulty controlling body weight may have a planned instructional program which involves a "weight watchers" diet (school and home), health assessment activities for height, weight and body composition, and physical activities for in the school, in the home, and in the neighborhood. Since the physical fitness performance area of this module contains suggestions for home, school and neighborhood activities, it is necessary to combine the objectives from this area with those in the activity and health area. These objectives, in turn, must be associated with other curriculum areas in order to create a well-rounded and worthwhile health/fitness program for the student.

In order to further associate all learnings, the focal points of activity for each enabling objective provide the teacher with information for building problem-solving instructional sequences. These problem solving sequences are useful not only in the physical education setting, but also for associated instructional sequences in health, nutrition, science, and social studies (in such areas as play preferences and social group community organizations).

Purpose of the Preliminary Draft

At this time the performance objectives and focal points of activity represent a preliminary draft of materials to be generated into an instructional sequence. Much of the material contained in this draft may be considered to be prerequisite to "learning to learn" how to control body weight (in other words, acquire and maintain optimal body weight for age, sex, body size, activity and work needs).

The primary purpose, at this time, in presenting these objectives is to gather teacher feedback data concerning the existing curriculum content and its relevance to the objectives found in the activity and health areas of I CAN. More specifically, we hope to collect data with respect to the following questions:

- What materials should we generate for the I CAN physical education curriculum in terms of performance objectives, instructional activities, and information for the teacher?

- What materials already exist in the school curriculum which are relevant to the objectives found in the Health/Fitness Module of I CAN?

- If materials already exist, can the objectives be presented best in instructional activities or content areas other than physical education? Which content areas? How? When? By whom?

- Which objectives with instructional sequences (enabling objectives, focal points for activity and teaching/learning activities) should be by the physical education teacher? By the classroom teacher? By the parent?

- What procedures should be used to coordinate the curriculum content in designing an instructional sequence for associated learnings in healthful living?

- At what age or cognitive developmental levels would these associated learnings be implemented?

The General Expectancy charts should serve as guidelines for the teacher as we gather data from the field. These charts include:

Height/Weight
Food for Healthy Living
Rest for Healthy Living
Activity for Healthy Living

Sequencing Criteria

Introduction

The materials found in the performance area, Moving and Growing, are sequenced by means of 2 criteria. First, the enabling objectives are sequenced from simple to complex so that concepts accumulate from the first enabling objective through to the last. Second, the instructional strategies within each enabling objective are sequenced according to levels of cognitive processing or the "learning to learn" sequence. Both of these criteria will be explained in more detail in the following paragraphs. Also, a section of considerations for the teacher will be included below. This will encompass such things as structure, feedback, and instructional sequence.

Criteria for Sequencing Enabling Objectives

The sequencing of the enabling objectives follows the cumulative learning model, (Gagne, 1971) which states that because it is cumulative in its effect, learning contributes to intellectual development. In other words, the child progresses from one point in his intellectual development to the next because his learnings build upon each other in a progressive sequence. This can be illustrated further by looking at the Enabling Objectives in Performance Objective 7, Measuring Weight and Recognizing Weight Changes (see Figure 2). From this illustration, we can see how learnings can build upon each other. A new concept is added in each Enabling Objective so that the child moves from the simple concept of weight in E01, to the concept of weight expectancies by age in E05, which encompasses all learnings from E01 to 4. In the learning sequence from E01 to E05 learnings have been built upon each other in a progressive manner. Furthermore, the concepts contained in the TPOs for Moving and Growing are preceded by many Body Management skills which are prerequisite learnings.

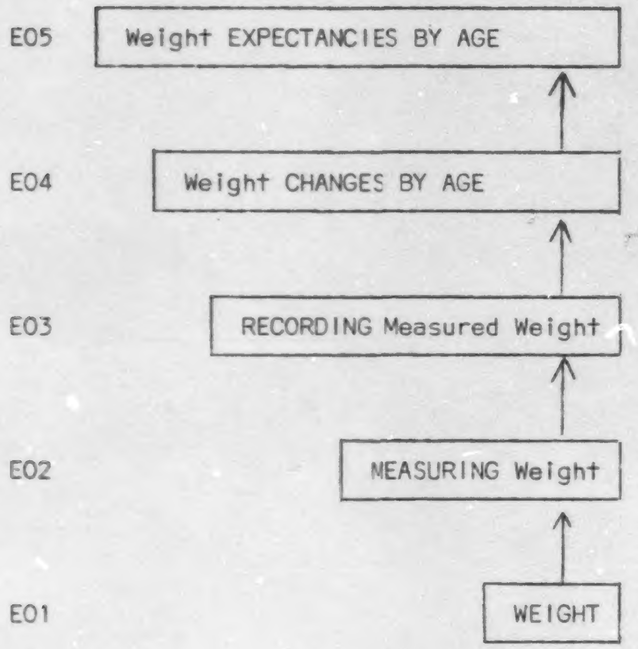
Criteria for Sequencing Instruction

The teacher/student interaction during instruction has become as significant a research variable as curriculum content and retardate abilities. What is important is not only the product of achievement or skill acquisition but also the process involved in learning the skill or the "learning to learn" component of all curriculum content. We may begin with rote learning in which the teacher tells, labels, explains and/or shows an object or concept to the student, who responds by immediately recalling the information when questioned. In this case the teacher dispenses the facts or rules. As the student grows in his cognitive abilities, the teacher should provide the necessary facts and materials for the learner so that he may find a solution or answer on his own. If this can be accomplished, it is probable that the retarded child will try independently to solve problems, seek information when needed, and be more able to encounter frustration in goal-striving. In short, the child may become less dependent upon the teacher as he grows in self-direction and self-reliance.

"Drill, drill, drill", as a learning method, until a sufficient level of mastery is attained, would enable the student to move toward becoming a problem-solver. The decision to choose the rote method, problem-solving method or a combination of the two, is made by the teacher, dependent upon the student learning styles and content difficulty.

Since the ultimate goal of education for the TMI child, and for all children, is to lead him toward becoming an independent, self-

TPO 7: Measuring Weight and Recognizing Weight Changes In Growing Up.


EO5
Weight EXPECTANCIES BY AGE
EO4
Weight CHANGES BY AGE
EO3
RECORDING Measured Weight
EO2
MEASURING Weight
EO1
WEIGHT

*Capital letters indicate the new concept added at each EO level to show the cumulative effect.

Figure 2. The cumulative learning model as it is used in the I CAN curriculum

directed problem-solver, the sequence criteria for instruction will be specified relative to cognitive levels of difficulty (see Figure 3). These cognitive levels, from lowest to highest, include: naming, describing, comparing, inferring, predicting, and generalizing. Each teaching/learning activity in the Moving and Growing area of I CAN will focus on one learning concept which can be taught in terms of this instructional hierarchy. In other words, the TLA for "Understanding weight changes by age", contains suggested teacher strategies (in terms of questions and gestures) and expected student behaviors (in terms of verbal and non-verbal responses) at each level of instruction (from naming to generalizing). Figure 3 provides an example of the types of teacher strategies and expected student behaviors at each level of learning.

In order to further facilitate the "learning to learn" instructional sequence, Figure 4 illustrates this sequence in chart form. With rectangles representing teacher strategies and ovals, student behaviors, the sequence of cognitive learning from naming to generalizing can be traced.

Considerations for the Teacher

The appropriate verbal and non-verbal transactions between teacher and learner are dependent upon student readiness and teacher knowledge in terms of constantly employing task questions which are sequenced in a logical order based upon student needs. These needs include the learning of a specific content area and the "learning to learn" sequence.

In considering the most efficient and best way that teaching and learning may occur, the teacher should consider the importance of structure, feedback, and instructional sequence.

1. Structure. In structuring the learning environment the teacher must consider the needs of both the verbal and non-verbal child. The non-verbal child should be presented a series of physical props, and the learning situation should be restructured so that he can uncover the important concept or principle by manipulating objects or props. For the verbal child, the teacher may have to change the type of questioning used to fit the child's vocabulary. It is essential that the teacher have prior knowledge of the child's experiences and style of learning (prerequisite skills and word concepts). As the child grows in his ability as an independent problem-solver, the teacher can reduce the external structure cues.

2. Feedback. Teacher feedback is a very important consideration in improving student performance. When the child responds correctly, the teacher should encourage and praise him. On the other hand, if the child responds incorrectly, the teacher should offer to help the child

	Cognitive Levels	Teacher Strategies	Student Behavior
low	naming	What is? Show me.	answers verbally or gesturally (motorically)
	describing	What does this have?	answers verbally or gesturally (motorically)
	comparing	Who is taller, you or John?	answers verbally or gesturally (motorically)
	inferring	What will happen if...?	answers verbally or gesturally (motorically)
	predicting	Will you be taller or shorter next year?	answers verbally or gesturally (motorically)
high	generalizing	Can you be weighed on a nurse's scale and a bathroom scale?	answers verbally or gesturally (motorically)

Figure 3. Cognitive levels

find the solution by reappraising his answer. In order to facilitate this, the teacher may ask other questions or provide different tasks for the learner. For instance, questions may be rephrased, the task or physical environment may be restructured, or other students may be called upon to act as resources in supplying other information. When incorrect answers or responses are given repeatedly, the child may need to develop the prerequisite skills for the task. When this is the case, the teacher can present a less complex objective to lead the child toward sufficient mastery to solve the problem.

3. Instructional Sequence. The basis for the Teaching/Learning Activities of the I CAN curriculum, to date, have been a rote or command teaching technique. This technique appears to be the most efficient in the teaching of facts, rules, regulations and lead-up skills. Once these skills are learned, the teacher may decide to use sequential questions and/or physical props for eliciting correct student response to the teaching objective and student growth in his problem-solving ability. The steps in building an informational repertoire for the student are based on the information in Figure 4, which sequences instruction from naming, describing, comparing, inferring, predicting to generalizing. The importance of combining rote or drill with problem-solving as the most effective teaching/learning technique cannot be over-emphasized. A combination of both methods has been found to afford the best learning opportunity for all children.

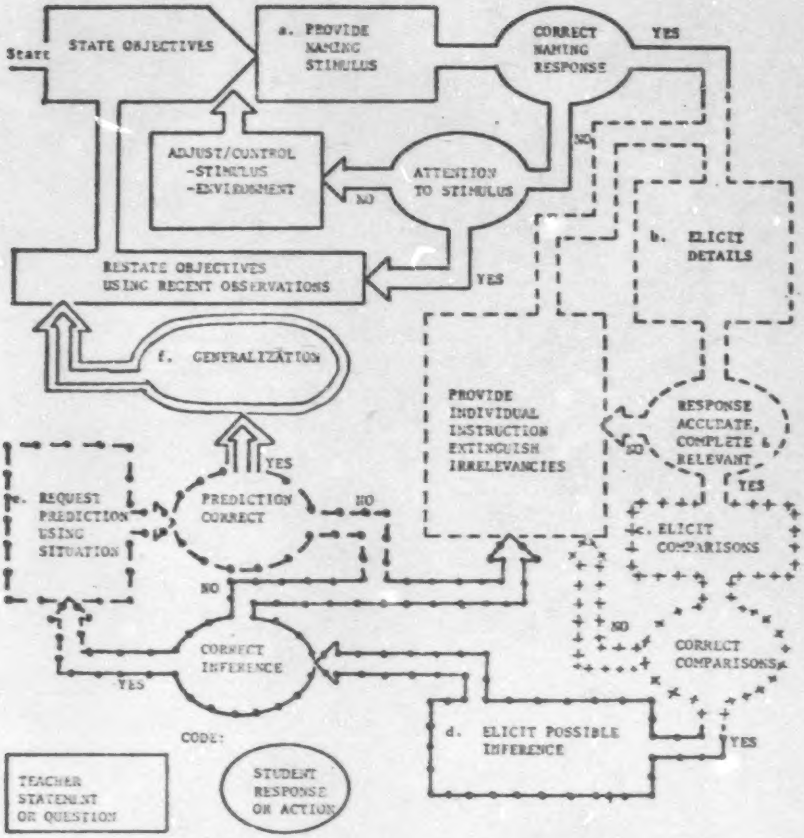

Start
STATE OBJECTIVES
a. PROVIDE NAMING STIMULUS
CORRECT NAMING RESPONSE
YES
NO
ADJUST/CONTROL
-STIMULUS
-ENVIRONMENT
NO
ATTENTION TO STIMULUS
YES
RESTATE OBJECTIVES USING RECENT OBSERVATIONS
b. ELICIT DETAILS
f. GENERALIZATION
PROVIDE INDIVIDUAL INSTRUCTION EXTINGUISH IRRELEVANCIES
RESPONSE ACCURATE, COMPLETE & RELEVANT
NO
YES
e. REQUEST PREDICTION USING SITUATION
YES
PREDICTION CORRECT
NO
NO
c. ELICIT COMPARISONS
NO
CORRECT INFERENCE
YES
CORRECT COMPARISONS
d. ELICIT POSSIBLE INFERENCE
YES
CODE:
TEACHER STATEMENT OR QUESTION
STUDENT RESPONSE OR ACTION

Figure 4. Learning to learn instruction sequence

Note: Adapted from Mischio, G. S., Inductive teaching techniques for the mentally retarded. Focus on Exceptional Children, January, 1973, Vol. 4, No. 8.

HEALTH/FITNESS

PERFORMANCE OBJECTIVES OUTLINE

Physical Fitness

1. Functional Level of Abdominal Strength and Muscular Endurance
    - 1.1 basic exercises
    - 1.2 test or competition
    - 1.3 develop
    - 1.4 maintain

2. Functional Level of Arm/Shoulder/Chest Strength and Muscular Endurance
    - 2.1 basic exercises
    - 2.2 test or competition
    - 2.3 develop
    - 2.4 maintain

3. Functional Level of Stamina and Heart/Lung Endurance
    - 3.1 basic exercises
    - 3.2 test or competition
    - 3.3 develop
    - 3.4 maintain

4. Functional Level of Trunk and Leg Flexibility
    - 4.1 basic exercises
    - 4.2 test or competition
    - 4.3 develop
    - 4.4 maintain

5. Functional Level of Relaxation
    - 5.1 basic exercises
    - 5.2 test or competition
    - 5.3 develop
    - 5.4 maintain

6. Basic Conditioning Routine
    - 6.1 perform
    - 6.2 perform at specification level

Moving and Growing

7. Measuring Weight and Recognized Weight Changes in Growing Up
    - 7.1 weight
    - 7.2 measuring weight
    - 7.3 recording weight
    - 7.4 weight changes by age
    - 7.5 weight expectancies by age

8. Measuring Height and Recognized Height Changes in Growing Up
    - 8.1 height
    - 8.2 measuring height
    - 8.3 recording height
    - 8.4 height changes by age
    - 8.5 height expectancies by age

9. Body Types and Body Type Changes in Growing Up
    - 9.1 body types
    - 9.2 composition of body types
    - 9.3 changes in body composition
    - 9.4 describing physique/figure
    - 9.5 activity programs for physique/figure development

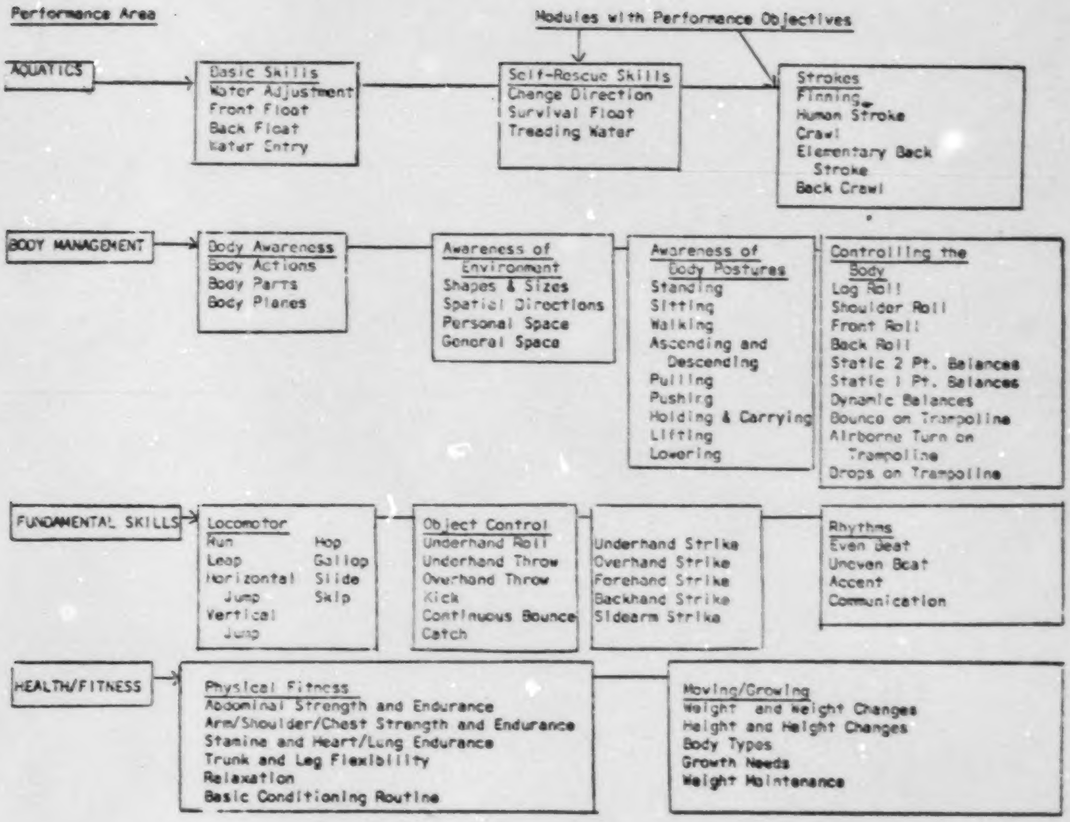
10. Growth Needs for Healthful Living
    - 10.1 food needs
    - 10.2 rest needs
    - 10.3 activity needs
    - 10.4 healthful living design

11. Body Weight Maintenance
    - 11.1 food and activity pattern requirements
    - 11.2 desirable weight
    - 11.3 maintain desirable weight

APPENDIX D: SAMPLE REVISED 1974-75 FIELD TEST MATERIALS

1. Modules with Performance Objectives
2. Performance Objective Product:
   Overhand Throw
3. Teacher's Manual: Content and
   Step I, Outline with Flow Chart

I. Modules with Performance Objectives

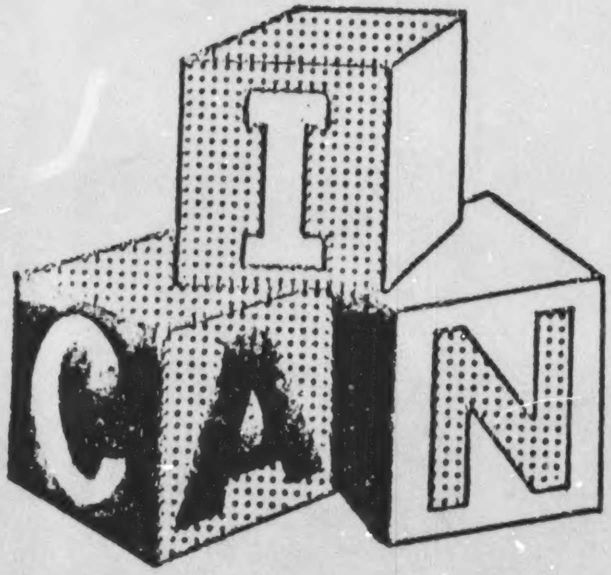

Performance Area
Modules with Performance Objectives
AQUATICS
Basic Skills
Water Adjustment
Front Float
Back Float
Water Entry
Self-Rescue Skills
Change Direction
Survival Float
Treading Water
Strokes
Finning
Human Stroke
Crawl
Elementary Back Stroke
Back Crawl
BODY MANAGEMENT
Body Awareness
Body Actions
Body Parts
Body Planes
Awareness of Environment
Shapes & Sizes
Spatial Directions
Personal Space
General Space
Awareness of Body Postures
Standing
Sitting
Walking
Ascending and Descending
Pulling
Pushing
Holding & Carrying
Lifting
Lowering
Controlling the Body
Log Roll
Shoulder Roll
Front Roll
Back Roll
Static 2 Pt. Balances
Static 1 Pt. Balances
Dynamic Balances
Bounce on Trampoline
Airborne Turn on Trampoline
Drops on Trampoline
FUNDAMENTAL SKILLS
Locomotor
Run
Leap
Horizontal Jump
Vertical Jump
Hop
Gallop
Slide
Skip
Object Control
Underhand Roll
Underhand Throw
Overhand Throw
Kick
Continuous Bounce
Catch
Underhand Strike
Overhand Strike
Forehand Strike
Backhand Strike
Sidearm Strike
Rhythms
Even Beat
Uneven Beat
Accent
Communication
HEALTH/FITNESS
Physical Fitness
Abdominal Strength and Endurance
Arm/Shoulder/Chest Strength and Endurance
Stamina and Heart/Lung Endurance
Trunk and Leg Flexibility
Relaxation
Basic Conditioning Routine
Moving/Growing
Weight and Weight Changes
Height and Height Changes
Body Types
Growth Needs
Weight Maintenance

The Scope of the I CAN Primary Skills Resource Modules

2. Performance Objective Product:

Overhand Throw

INDIVIDUALIZED PHYSICAL EDUCATION CURRICULUM MATERIALS



SAMPLE MATERIAL

Field Test Edition 1974 - 1975

Field Service Unit in Physical Education & Recreation for the Handicapped
Michigan State University

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Field Service Unit in Physical Education and Recreation for the Handicapped
Project I CAN

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PROJECT DIRECTOR.
Janet A. Wessel, Ph.D.
Room 135 WIM Building
MICHIGAN STATE UNIVERSITY
East Lansing, Michigan 48824
Phone: (517) 355-4740

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PERFORMANCE OBJECTIVES OUTLINE

Functional Underhand Roll
EO 1 Underhand roll with assistance
2 Underhand roll without assistance
3 Mature underhand roll
4 Underhand roll with accuracy

Functional Underhand Throw
EO 1 Underhand throw with assistance
2 Underhand throw without assistance
3 Mature underhand throw
4 Mature underhand throw for distance
5 Mature underhand throw for accuracy

Functional Overhand Throw
EO 1 Overhand throw with assistance
2 Overhand throw without assistance
3 Mature overhand throw
4 Mature overhand throw for distance
5 Mature overhand throw for accuracy

Functional Kick
EO 1 Kick with assistance
2 Kick without assistance
3 Mature kick
4 Mature kick for distance
5 Mature kick for accuracy

Continuous Bounce
EO 1 Bounce with assistance
2 Bounce without assistance
3 Mature continuous bounce
4 Continuous bounce while moving
5 Continuous bounce while moving around obstacles

Functional Catch
EO 1 Catch with assistance
2 Catch without assistance
3 Mature catch
4 Move into position and catch

Functional Underhand Strike
EO 1 Underhand strike with assistance
2 Underhand strike without assistance
3 Mature underhand strike
4 Underhand strike with accuracy

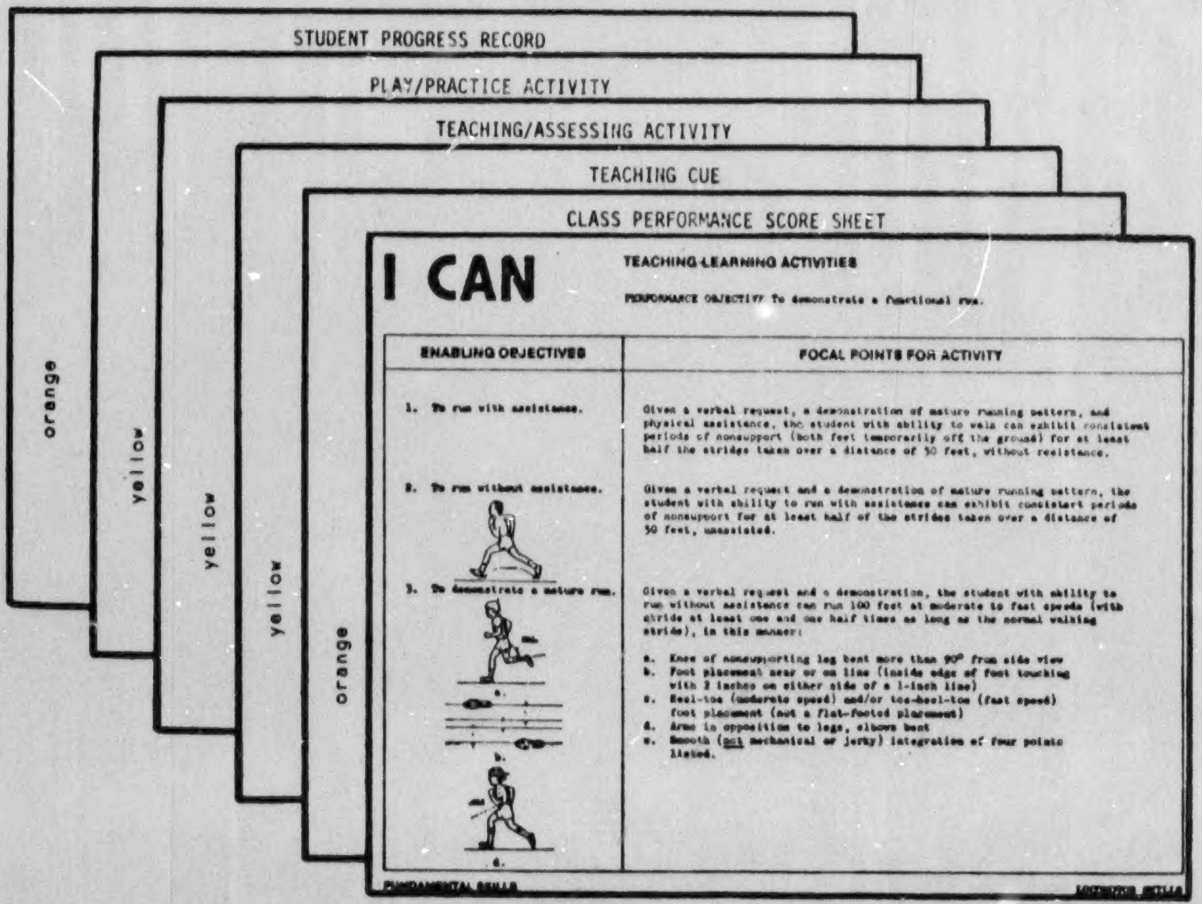
Functional Overhand Strike
EO 1 Overhand strike with assistance
2 Overhand strike without assistance
3 Mature overhand strike
4 Move into position and strike

Functional One-Hand Forehand Strike
EO 1 One-hand forehand strike with assistance
2 One-hand forehand strike without assistance
3 Mature one-hand forehand strike
4 Move into position and strike

Functional One-Hand Backhand Strike
EO 1 One-hand backhand strike with assistance
2 One-hand backhand strike without assistance
3 Mature one-hand backhand strike
4 Move into position and strike

Two-Hand Sidearm Strike
EO 1 Two-hand sidearm strike with assistance
2 Two-hand sidearm strike without assistance
3 Mature two-hand sidearm strike
4 Mature two-hand sidearm strike with accuracy

MATERIALS DESIGN


STUDENT PROGRESS RECORD
PLAY/PRACTICE ACTIVITY
TEACHING/ASSESSING ACTIVITY
TEACHING CUE
CLASS PERFORMANCE SCORE SHEET
orange
yellow
yellow
yellow
orange
a.
b.
c.

I CAN

TEACHING-LEARNING ACTIVITIES

PERFORMANCE OBJECTIVE To demonstrate a functional run.

ENABLING OBJECTIVES	FOCAL POINTS FOR ACTIVITY
1. To run with assistance.	Given a verbal request, a demonstration of mature running pattern, and physical assistance, the student with ability to walk can exhibit consistent periods of nonsupport (both feet temporarily off the ground) for at least half the strides taken over a distance of 50 feet, without resistance.
2. To run without assistance.	Given a verbal request and a demonstration of mature running pattern, the student with ability to run with assistance can exhibit consistent periods of nonsupport for at least half of the strides taken over a distance of 50 feet, unassisted.
3. To demonstrate a mature run.	Given a verbal request and a demonstration, the student with ability to run without assistance can run 100 feet at moderate to fast speeds (with stride at least one and one half times as long as the normal walking stride), in this manner: a. Knee of nonsupporting leg bent more than 90° from side view b. Foot placement near or on line (inside edge of foot touching with 2 inches on either side of a 1-inch line) c. Heel-toe (moderate speed) and/or toe-heel-toe (fast speed) foot placement (not a flat-footed placement) d. Arms in opposition to legs, elbows bent e. Smooth (not mechanical or jerky) integration of four points listed.

FUNDAMENTAL SKILLS

LOCOMOTOR SKILLS

I CAN

TEACHING-LEARNING ACTIVITIES

PERFORMANCE OBJECTIVE To demonstrate a functional overhand throw 3

ENABLING OBJECTIVES	FOCAL POINTS FOR ACTIVITY
1. To demonstrate an overhand throw with assistance.	Given a verbal request, a demonstration, and physical assistance, a student with the ability to grasp a ball, can throw, 2 out of 3 times, a 4 to 6 inch ball for a distance of at least 10 feet, without resistance, in this manner: a. Overhand motion in the direction of the throw (hand passes above shoulder) b. Release the ball in the anticipated direction.
2. To demonstrate an overhand throw without assistance. b.	Given a verbal request and a demonstration of the mature overhand throw, a student with the ability to perform the overhand throw with assistance can throw a 4-6 inch ball to a 20-inch wide target placed 15 feet away, 2 out of 3 times, in this manner: a. Eyes focused on the target b. Throwing arm motion includes the hand passing above the shoulder.
3. To demonstrate a mature overhand throw. a.,c. b.,c.	Given a verbal request and a demonstration, a student with the ability to perform the overhand throw can throw a 4-6 inch ball, 2 out of 3 times, in this manner: a. Almost complete extension of the throwing arm to initiate wind-up for the throwing action (assuming a side orientation prior to the throw) b. Weight transfer to the foot opposite the throwing arm c. Hip and spine rotation (1/4 rotation) in preparation for and during the throwing action d. Follow-through well beyond ball release and toward the desired direction e. Smooth (not mechanical or jerky) integration of four previous points.

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TEACHING-LEARNING ACTIVITIES

PERFORMANCE OBJECTIVE To demonstrate a functional overhand throw

<table>
<tr><th>ENABLING OBJECTIVES</th><th>FOCAL POINTS FOR ACTIVITY</th></tr>
<tr><td>4. To demonstrate a mature overhand throw for distance.

Distance* (in feet) boys and girls 8-15 years should be able to throw a 4-6 inch ball
<table>
<tr><th>Age in years</th><th>8-9</th><th>10-12</th><th>13-15</th></tr>
<tr><td>Girls</td><td>46</td><td>71</td><td>84</td></tr>
<tr><td>Boys</td><td>73</td><td>114</td><td>159</td></tr>
</table>
*These are the minimum acceptable distance criteria.
Source: Special Olympics Instructional Manual, American Association for Health, Physical Education and Recreation and The Joseph P. Kennedy, Jr. Foundation, 1972.</td><td>Given a verbal request and a demonstration, a student with the mature throwing pattern and sufficient arm strength can throw a 4-6 inch ball a distance of at least the minimum performance criteria for age/sex (see chart) 2 out of 3 times with angle of release at 45° (±5°).</td></tr>
<tr><td>5. To demonstrate a mature overhand throw for accuracy.</td><td>Given a verbal request and a demonstration, the student can throw with a mature pattern a 4-6 inch ball, 2 out of 3 times, hitting an 8-foot-square target placed 1 foot off the ground from a distance of 50 feet.</td></tr>
</table>

CLASS PERFORMANCE SCORE SHEET

Fundamental Skills - Object Control - TPO : Overhand Throw

FOCAL POINT	STANDARD	GIVEN
a Overhand Motion b Ball Release	10'	grasp and release
a Eyes on Target b Overhand Motion	20' target at 15', 2/3 times	assisted overhand throw
a Arm Exten./Side Orient. b Weight Transfer c Hip and Spine Rotation d Follow-through a Smooth Integration	2/3 times, e	unassisted overhand throw
a Angle of Release 45	age/sex norm. 2/3 times	mature pattern
b Accuracy	8' sq. target at 50', 2/3 t.	mature pattern distance

***Primary Responses**

a. non-attending
b. no response
c. unrelated response
d. other (specify in comments)

SCORING

Assessment:

x = achieved
o = not achieved

Re-Assessment:

■ = achieved
∅ = not achieved

	EO #1		EO #2		EO #3					EO #4	EO #5		
Name	a	b	a	b	a	b	c	d	e	a	a	Primary Responses*	Comments
1.													
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													
11.													
12.													
13.													

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TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw
ENABLING OBJECTIVE 1. Overhand throw with assistance
FOCAL POINT a. Overhand motion in the direction of the throw (hand passes above shoulder)

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS
Model the mature overhand throw. Tell or gesture to emphasize the hand being above the shoulder. Practice the overhand throw. Manipulate and give verbal cues emphasizing the hand above the shoulder when necessary.	Physical Manipulation: Stand behind the student. Grasp the hand or wrist of throwing arm. Move his hand to the above the shoulder position and through the overhand throwing motion. Say: THROW THE BALL. THROW HARD. Environmental Manipulation: Indicate a wall or other large target to be thrown at. Say: THROW AT THE WALL. THROW HARD. Modeling: Model the correct overhand throwing action with hand passing above the shoulder. Say: DO THIS (point to throwing arm). WATCH ME THROW. THROW AS HARD AS YOU CAN. Materials: 4-6 inch ball

HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw 7
ENABLING OBJECTIVE 1. Overhand throw with assistance
FOCAL POINT b. Release the ball in the anticipated direction of the throw

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS
Model the mature overhand throw. Tell or gesture to indicate the release of the ball in the direction of the throw. Practice the throw. Manipulate and give verbal cues emphasizing the correct release when necessary.	Physical Manipulation: Stand behind the student. Grasp the wrist of his throwing arm and move his arm through the overhand throwing motion. As the hand passes above the shoulder and forward in the direction of the throw, snap the student's wrist slightly to release the ball. Say: THROW THE BALL. THROW HARD. Environmental Manipulation: 1. Indicate a wall or other large target to be thrown at. Say: THROW AT THE WALL. THROW HARD. 2. Attach a string to the ball. Stand in front of the student and tell him to throw. As the throwing hand moves above the shoulder and forward, pull on the string to promote release of the ball. Say: THROW TO ME. THROW HARD. Modeling: Model the correct overhand throwing action with release in direction of throw. Say: DO THIS (point to throwing arm). WATCH ME THROW. THROW AS HARD AS YOU CAN. Materials: 4-6 inch balls, string 4-6 feet long attached to some balls

HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

I CAN

TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw
ENABLING OBJECTIVE 2. Overhand throw without assistance
FOCAL POINT a. Eyes focused on the target

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS
Model the mature overhand throw at a target. Tell or gesture to emphasize eyes focused on the target. Practice throwing at a target. Manipulate and give verbal cues emphasizing eyes focused on the target when necessary.	Physical Manipulation: 1. Stand behind the student. Turn his head with your hands so that he faces the target directly. Say: THIS IS A TARGET. LOOK AT THE TARGET. THROW AT THE TARGET. THROW HARD. 2. Stand behind the student. Place your hands, fingers together and palms in, on the student's head alongside his eyes to serve as "blinders." Turn the student's face toward the target. Say: LOOK AT THE TARGET. THROW AT THE TARGET. THROW HARD. Environmental Manipulation: 1. Make a target 20 inches round or square out of brightly colored paper or with an attention-getting design. Place it on a wall at the student's eye level. Student should be 15 feet from the target. Say: LOOK AT THE TARGET. THROW AT THE TARGET. THROW HARD. 2. Hold the target in front of you at the student's eye level. Stand 15 feet in front of the student. Say: LOOK AT ME. THROW AT THE TARGET I AM HOLDING. THROW HARD. Modeling: Model overhand throwing with eyes focused on the target. Say: DO THIS (point to eyes looking at target). WATCH ME THROW AT THE TARGET. THROW AT THE TARGET AS HARD AS YOU CAN. Materials: 4-6 inch ball, target 20 inches wide

HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw
ENABLING OBJECTIVE 2. Overhand throw without assistance
FOCAL POINT b. Throwing arm motion includes the hand passing above the shoulder

9

GENERAL DIRECTIONS

Model the mature overhand throw at a target. Tell or gesture to emphasize the hand passing above the shoulder.

Practice throwing at a target. Manipulate and give verbal cues emphasizing the hand passing above the shoulder when necessary.

SPECIFIC DIRECTIONS

Physical Manipulation:
Stand behind the student. Grasp the hand or wrist of his throwing arm and move his arm through the full overhand throwing motion.

Say: THIS IS YOUR HAND. THIS IS YOUR SHOULDER. MAKE YOUR HAND GO ABOVE YOUR SHOULDER WHEN YOU THROW. THROW HARD.

Environmental Manipulation:
Student should stand 15 feet away from the target.

Modeling:
Model the correct overhand throwing action with hand passing above the shoulder.

Say: DO THIS (point to throwing arm). WATCH ME THROW. MY HAND GOES ABOVE MY SHOULDER WHEN I THROW. NOW THROW AS HARD AS YOU CAN.

Materials: 4-6 inch ball, target 20 inches wide

HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

I CAN

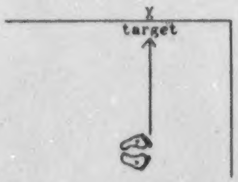
TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw 10
ENABLING OBJECTIVE 3. Mature overhand throw
FOCAL POINT a. Almost complete extension of the throwing arm for wind-up

GENERAL DIRECTIONS

Model the mature overhand throw. Tell or gesture to indicate the complete extension of the throwing arm and side orientation.

Practice the throw. Manipulate and give verbal cues emphasizing the complete extension of the throwing arm and side orientation when necessary.



SPECIFIC DIRECTIONS

Physical Manipulation:

1. Stand behind the student. Turn his body so that his toes point at a 90° angle from the line of the target. Turn his head to face the target. Pull his throwing arm behind his shoulder so that there is a complete extension.

2. When the student is in the proper side-oriented position, stand 3 feet behind him with a ball. Tell him to reach back to you for the ball, then throw.

Say: POINT YOUR TOES TO THAT WALL. LOOK AT THE TARGET. PUT YOUR ARM AS FAR BACK AS YOU CAN. THROW HARD AT THE TARGET.

Environmental Manipulation:

Indicate a wall or other target to be thrown at. Tape paper foot prints to the floor placed at a 90° angle to the desired direction of the throw. Have student place his feet on the foot prints.

Say: STAND ON THE FOOT PRINTS. THROW HARD AT THE TARGET.

Modeling:

Model the correct overhand throwing action. Hold the arm extension position.

Say: DO THIS (point to throwing arm). WATCH ME THROW. MY ARM GOES WAY BACK. NOW YOU THROW. PUT YOUR ARM BACK AS FAR AS YOU CAN. THROW HARD.

Materials: 4-6 inch ball, foot prints

HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

I CAN

TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw
ENABLING OBJECTIVE 3. Mature overhand throw
FOCAL POINT b. Weight transfer to the foot opposite the throwing arm

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS
Model the mature overhand throw. Tell or gesture to emphasize weight transfer. Practice the throw. Manipulate and give verbal cues to emphasize weight transfer.	Physical Manipulation: Stand behind the student. Pull his throwing arm back and bring shoulders and hips back so that all of his weight is on the foot of the side of his throwing arm. Move his arm through the throwing motion, giving a slight push forward to promote the transfer of weight to the foot opposite the throwing arm. Say: PUT YOUR ARM BACK AS FAR AS YOU CAN. STAND ON THIS FOOT (point or tap). THROW HARD. NOW STEP ON YOUR OTHER FOOT. Environmental Manipulation: Place a piece of construction paper or small rug in front of the student the distance of one of his forward strides. Have him stand with his weight on the foot of the throwing arm side and step forward to the paper or rug with the opposite foot. Say: PUT YOUR ARM BACK AS FAR AS YOU CAN. STAND ON THIS FOOT (point or tap). STEP ON THE PAPER WITH YOUR OTHER FOOT WHEN YOU THROW. THROW HARD. Modeling: Model the correct overhand throwing action, exaggerating the weight transfer. Say: DO THIS (point to back leg, then front). WATCH ME THROW. I STAND ON THIS FOOT (point). THEN I STEP ON THIS FOOT (point) WHEN I THROW. NOW YOU THROW HARD. STEP LIKE I DO. Materials: 4-6 inch ball, square of construction paper or small rug

HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

I CAN

TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw
ENABLING OBJECTIVE 3. Mature overhand throw
FOCAL POINT c. Hip and spine rotation (1/4 rotation) in preparation for and during the throwing action

12

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS
Model the mature overhand throw. Tell or gesture to emphasize hip and spine rotation. Practice the throw. Manipulate and give verbal cues to emphasize hip and spine rotation when necessary.	Physical Manipulation: 1. While student is standing in the side-oriented position, twist his body in the proper direction by placing your hands on his shoulder, back or hip and turning. Repeat while student goes through throwing motion. Say: PUT YOUR ARM BACK AS FAR AS YOU CAN. TURN TOWARD YOUR ARM. THROW AS HARD AS YOU CAN. 2. When the student is in the proper side-oriented position, stand behind him but slightly to the side opposite his throwing arm. Have him reach back to you for the ball, then throw. Say: PUT YOUR ARM BACK TOWARD ME. TURN SO YOU CAN REACH THE BALL. NOW TURN TOWARD THE TARGET WHEN YOU THROW. THROW HARD. Environmental Manipulation: Indicate a wall or other target to be thrown at. Say: PUT YOUR ARM BACK AS FAR AS YOU CAN. TURN TOWARD YOUR ARM. TURN TOWARD THE TARGET WHEN YOU THROW. THROW HARD. Modeling: Model the correct overhand throwing action, exaggerating the hip and spine rotation and holding key position. Say: DO THIS (point to hips, shoulders, spine turning). WATCH ME THROW. I PUT MY ARM BACK AND TURN TOWARD IT. THEN I TURN TOWARD THE TARGET AND THROW. NOW YOU THROW HARD. TURN LIKE I DO. Materials: 4-6 inch balls

HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

I CAN

TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw
ENABLING OBJECTIVE 3. Mature overhand throw
FOCAL POINT d. Follow-through well beyond ball release and toward the desired direction

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS
Model the mature overhand throw. Tell or gesture to indicate the follow-through of the throwing arm. Practice the throw. Manipulate and give verbal cues emphasizing the follow-through when necessary.	Physical Manipulation: Stand behind the student. Grasp the hand or wrist of his throwing arm. Move his arm through the throwing action and the follow-through motion forward and down, first without then with a ball. Say: PUT YOUR ARM BACK AND THROW. KEEP YOUR ARM MOVING AFTER YOU LET GO OF THE BALL. Environmental Manipulation: Indicate a target to be thrown at. Tell the student to point to the target with his arm when he throws and keep his arm moving after that. Say: THROW HARD AT THE TARGET. POINT YOUR ARM AT THE TARGET WHEN YOU LET GO OF THE BALL. KEEP YOUR ARM MOVING AFTER YOU THROW. Modeling: Model the correct overhand throwing action with the throwing arm continuing to move forward and down after release of the ball. Say: DO THIS (point to throwing arm). WATCH ME THROW. MY ARM KEEPS MOVING AFTER I LET GO OF THE BALL. NOW YOU THROW HARD. MAKE YOUR ARM KEEP MOVING AFTER THE BALL GOES. Materials: 4-6 inch balls, target

HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

I CAN

TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw
ENABLING OBJECTIVE 3. Mature overhand throw
FOCAL POINT e. Smooth integration of previous focal points

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS
Model the mature overhand throw. Tell or gesture to indicate that the motion should be smooth and continuous. Practice the throw. Manipulate or give verbal cues to emphasize the smooth integration of all components of the throw.	Physical Manipulation: None suggested. Environmental Manipulation: Provide several targets at varying distances for students to throw at. Allow all students maximal practice opportunities. Say: THROW AS HARD AS YOU CAN. Modeling: Model the correct throwing action in a smooth, continuous motion. Say: DO THIS. WATCH ME THROW. THROW AS HARD AS YOU CAN. Materials: 4-6 inch balls, targets

HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

I CAN

TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw
ENABLING OBJECTIVE 4. Mature overhand throw for distance
FOCAL POINT Angle of release at 45° (± 5°)

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS
Model the mature overhand throw. Tell or gesture to indicate the point of release of the ball at a 45° angle. Practice the throw. Manipulate and give verbal cues emphasizing release of the ball at a 45° angle when necessary.	Physical Manipulation: Stand behind the student. Grasp the hand or wrist of his throwing arm. Move his arm slowly through the overhand throwing motion. Stop when his hand reaches the point of a 45° angle forward. Say: TO MAKE THE BALL GO FAR, LET GO OF THE BALL WHEN YOUR ARM IS HERE. THROW HARD. Environmental Manipulation: 1. Place paper targets at a height that requires release of the ball at a 45° angle. Gradually move the student farther away from the target. Say: THROW AT THE TARGET. THROW HARD. 2. Tie a rope or volleyball net across the room for student to throw over. Gradually increase distance. Say: THROW THE BALL OVER THE NET. THROW HARD. Modeling: Model the correct overhand throwing action for distance, holding the arm at the 45° forward angle position. Say: DO THIS (point to throwing arm). WATCH ME THROW. TO MAKE THE BALL GO FAR I LET GO WHEN MY ARM IS HERE. NOW YOU THROW HARD. MAKE THE BALL GO FAR. Materials: 4-6 inch balls, rope or net and poles, targets

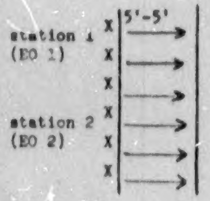
HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

TEACHING CUES

PERFORMANCE OBJECTIVE Overhand throw
ENABLING OBJECTIVE 5. Mature overhand throw for accuracy
FOCAL POINT Ball hits target specified number of times

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS
Model the mature overhand throw for accuracy. Tell or gesture to indicate the desired target. Practice the throw. Manipulate or give verbal cues to emphasize hitting the target when necessary.	Physical Manipulation: None suggested Environmental Manipulation: 1. Have student throw at the target from a distance of 5 feet, then 8 feet, then 10, gradually increasing the distance to 50 feet. Make the target a bright color or attention-getting design. Say: THROW AT THE TARGET. THROW AS HARD AS YOU CAN. 2. If the student misses the target, point or gesture to indicate a change in the direction of the throw. Say: THROW THIS WAY (point). THROW HIGHER (LOWER). Modeling: Model the correct overhand throwing action at various distances from the target. Say: DO THIS. WATCH ME HIT THE TARGET. NOW THROW AT THE TARGET AS HARD AS YOU CAN. Materials: 4-6 inch balls, target 8-feet-square, 1 foot off the ground

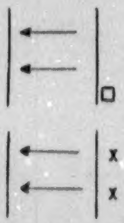
HAVE STUDENTS PRACTICE. REINFORCE CORRECT AND NEARLY CORRECT ACTIONS.

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS	ORGANIZATION AND MATERIALS	ACTION WORDS	PLAY-PRACTICE ACTIVITIES
Introduce the overhand throw. model practice	Ask students to THROW or DO THIS. Model the overhand throw: -hand passing above shoulder -release ball in direction of throw -eyes focused on target -side orientation -complete extension of throwing arm in wind-up -weight transfer to foot opposite throwing arm -hip and spine rotation -follow-through well beyond ball release Physically assist students who do not throw.	Organization Line; students throw at wall Materials 4-6 inch balls, one per student	THROW	
EO 1 and 2 Engage in overhand throwing activity. model practice assess SUGGESTED SEQUENCE 1. Projecting a ball in any way or in any direction. 2. Throwing with hand passing above shoulder, full assistance. 3. Throwing with hand passing above shoulder, movement initiated. 4. Throwing with hand passing above shoulder, no assistance.	Continue modeling and practicing the overhand throw. Manipulate students who do not throw by grasping the hand or wrist of their throwing arm, and moving through the throwing motion with the hand passing above the shoulder. Tell students to throw hard. Organize the class into two stations, with students in a line throwing at targets on the wall. Group students by EO level (with/without assistance) or focal points. Teacher or aide will teach, assess, and allow for practice of one or more focal points at each station.	Organization Line Stations  Materials 4-6 inch balls, one per student 1-inch masking tape 20-inch-wide target, 15 feet from student	THROW HARD LOOK HAND SHOULDER ABOVE	Cleaning Out the Backyard

I CAN

TEACHING-ASSESSING ACTIVITIES

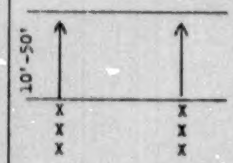
PERFORMANCE OBJECTIVE Overhand throw

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS	ORGANIZATION AND MATERIALS	ACTION WORDS	PLAY-PRACTICE ACTIVITIES
EO 1 Engage in overhand throwing activity. model practice assess SUGGESTED SEQUENCE None	Organize the class into stations. Each student will throw at the wall or target, concentrating on the focal point(s) of that station. Students change stations on a signal from the teacher. Place students on a line parallel to the wall or targets. Place paper footprints behind the line at Station 1 for students to stand on while practicing the side orientation, and small rugs or paper to step on in practicing the weight transfer. At each station the teacher or aide will teach, assess, and allow for practice of one or more focal points.	Organization Station 1 (focal points a and b Station 2 (focal points c and d)  Materials -4-6-inch balls, one per student -1-inch masking tape -paper foot prints -squares of construction paper or small rugs -targets, one per student	THROW HARD LOOK TOES ARM BACK STAND FAR STEP FOOT TURN TOWARD BALL POINT	Leader Class

I CAN

TEACHING-ASSESSING ACTIVITIES

PERFORMANCE OBJECTIVE Overhand throw

GENERAL DIRECTIONS	SPECIFIC DIRECTIONS	ORGANIZATION AND MATERIALS	ACTION WORDS	PLAY-PRACTICE ACTIVITIES
EO 4 Engage in overhand throwing activity for distance. model practice assess SUGGESTED SEQUENCE 1. Throwing at a distance equal to 25th percentile for age/sex. 2. Throwing at criterion for age/sex.	Organize the class into lines facing walls. Each student will throw at a target placed on the wall at a height requiring release of the ball at a 45° angle. Gradually move the line farther and farther from targets. Teacher and/or aide will teach, assess, and allow for practice of the mature overhand throw for distance.	Organization Line Materials -4-6 inch ball per student -1-inch masking tape -paper target per student	FAR ARM THROW HARD	Net Ball
EO 5 Engage in overhand throwing activity for accuracy. model practice assess SUGGESTED SEQUENCE 1. Hitting 8 foot target from 10 feet. 2. Hitting 8 foot target from 30 feet. 3. Hitting 8 foot target from 50 feet.	Organize the class into relay stations. Place an 8-foot-square target 1 foot off the ground on a wall 10 feet away. Each student will throw at the target in turn. After each student has hit the target at this distance, move the relay line to 15 feet from the target, then 20 feet gradually to 50 feet. Teacher or aide will teach, assess, and allow for practice on hitting the target at each relay station.	Organization Relay Stations  Materials -4-6-inch ball per student -1-inch masking tape -8-foot-square targets placed 1 foot off the ground	THROW HARD HIGHER LOWER	Target Practice

PLAY AND PRACTICE ACTIVITIES

PERFORMANCE OBJECTIVE Overhand throw

Title: Cleaning Out the Back Yard **Source:** Project Staff **Suggested Age Range:** 5-14

Materials:
2 (or more) assorted 4-6-inch balls
volleyball net and poles

Play Groupings:
large group/team

Organization:
scattered on each side of net

Related Social Skills:
- -exhibits tolerance for others through participating in activity
- -exhibits respect for self and others' rights and responsibilities in obtaining property
- -competes as a member of a team

TEACHING STRATEGIES

General Directions	Specific Directions
Organize students as described above.	Tie a volleyball net across the middle of the room with the top 3 to 4 feet above the floor. Divide class into two teams of equal numbers, one team on each side of the net. Scatter an assortment of 4-6-inch balls (nerf balls, yarn balls, tennis balls, etc.) on the floor of each side.
State or demonstrate that the object of the game is to try to throw all balls over the net to the other side.	Say: LOOK AT ALL THESE BALLS MESSING UP OUR BACK YARD. WE HAVE TO THROW THEM ALL OUT. WHEN I BLOW THE WHISTLE, THROW AS MANY AS YOU CAN OVER THE NET. WHEN I BLOW THE WHISTLE AGAIN, STOP.
Practice the game to be sure that all students understand how to play.	Have students practice. Be sure each student has an opportunity to throw. Emphasize throwing overhand and hard. Repeat directions with opposing team.
Play the game, teaching and/or assessing the overhand throw when appropriate.	Say: NOW, LET'S PLAY THE GAME. TRY TO KEEP YOUR YARD CLEAN BY THROWING ALL THE BALLS OUT. THROW THEM ACROSS THE NET. WHEN I BLOW THE WHISTLE TO STOP THE TEAM WITH THE LEAST BALLS WINS. When all students understand the game, step to the side and give the whistle signals. Instruct and/or assess as the game is played. Specific focal points may be emphasized. For example: Say: MAKE SURE YOUR HAND GOES ABOVE YOUR SHOULDER WHEN YOU THROW.

Teaching Alternatives

1. Raise the height of the net for older or more skilled students.
2. Start with only 2 balls and increase the number as the student's skill improves.

PLAY AND PRACTICE ACTIVITIES

PERFORMANCE OBJECTIVE Overhand throw

Title: Leader Class **Source:** Schurr, p. 368 **Suggested Age Range:** 5-14

Materials:
one 4-6-inch ball per team

Play Groupings:
team play

Organization: relay teams 0=leader

←— 5 feet ——→
X X X←- - - - - - -← 0
X X X←- - - - - - -← 0
X X X←- - - - - - -← 0

Related Social Skills:
-cooperates through working with others on a team
-competes as a member of a team
-exhibits courtesy toward others in taking turns

TEACHING STRATEGIES

General Directions	Specific Directions
Organize students as diagrammed above.	Divide class into equal teams with students lined up one behind the other. Designate one student from each team as "leader"; the leader will stand 5 feet from the first person on his team, facing him. The leader will throw the ball overhand to the first team member in line, who then throws it back to the leader and sits down. Say: JOE IS THE LEADER OF THIS TEAM. HE THROWS THE BALL TO MARY. MARY THROWS IT BACK TO HIM AND SITS DOWN (demonstrate).
State or demonstrate that the object of the game is for the leader to throw the ball overhand to each team member, one at a time, who then throws it overhand back to the leader.	Have students practice. Emphasize throwing overhand. Say: NOW THROW THE BALL TO TOMMY. TOMMY, THROW TO JOE AND SIT DOWN.
Practice the game to be sure that all students understand how to play.	Continue this procedure with each successive member of the team. Say: THROW AND CATCH UNTIL THE WHOLE TEAM IS SITTING. TRY TO MAKE GOOD THROWS. THROW FAST. THE FIRST TEAM SITTING IS THE WINNER.
Play the game, teaching and/or assessing the overhand throw when appropriate.	When all students understand the game, step to the side and give the signal to start. Instruct and/or assess as the game is played. Specific focal points may be emphasized. For example: Say: MAKE SURE YOUR ARM GOES WAY BACK BEFORE YOU THROW.
	Teaching Alternatives
	1. Increase distance from leader to the team according to students' skill. 2. Vary the size and type of ball, e.g., 6-inch nerf balls for younger students, tennis balls for older or more skilled students. 3. Use other object control skills (roll, underhand throw).

I CAN

PLAY AND PRACTICE ACTIVITIES

PERFORMANCE OBJECTIVE Overhand throw

Title: Net Ball **Source:** Project Staff **Suggested Age Range** 8-14, 5-8*

Materials:
one 4-6-inch ball
volleyball net and poles

Play Groupings:
team play

Organization:
scattered on each side of net

Related Social Skills:
-cooperates through working with others on a team
-competes as a member of a team

TEACHING STRATEGIES

General Directions

Organize students as described above.

State or demonstrate that the object of the game is for one team to throw the ball over the net and for the other team to catch it before it hits the floor, throwing it back quickly. If the ball is not caught before it bounces, the other team gets a point.

Practice the game to be sure that all students understand how to play.

Play the game, teaching and/or assessing the overhand throw when appropriate.

Specific Directions

Tie a volleyball net across the middle of the room at a height of 10 feet. Divide the class into two teams of equal numbers, one team on each side of the net. Give the ball to a member of one team.

Say: WHEN THIS TEAM HAS THE BALL, THEY HAVE TO THROW IT OVER THE NET. JANE, THROW THE BALL OVER THE NET.

Give same instructions to other team. Have students practice throwing over net. Explain that the thrown ball must be caught before it hits the floor.

Say: WHEN THE BALL COMES TO YOU, TRY TO CATCH IT BEFORE IT BOUNCES.

Have students practice throwing and catching the ball in the air. Be sure each student has an opportunity to throw and catch. Explain the scoring of the game.

Say: IF YOUR TEAM DOESN'T CATCH THE BALL BEFORE IT BOUNCES, THE OTHER TEAM GETS A POINT. THE TEAM WITH THE MOST POINTS WINS. WHEN YOU GET THE BALL, THROW IT BACK AS FAST AS YOU CAN. TRY TO THROW TO A DIFFERENT PERSON EACH TIME.

When all students understand the game, step to the side. Instruct and/or assess as the game is played. Emphasize throwing the ball overhand, hard, and high.

Teaching Alternatives

1. Vary the height of the net according to height of student, skills, etc.
2.* For younger students (5-8 yrs.) award a point for each time the ball goes over the net, emphasizing only throwing overhand and a 45° angle of release.

I CAN

PLAY AND PRACTICE ACTIVITIES

PERFORMANCE OBJECTIVE Overhand throw

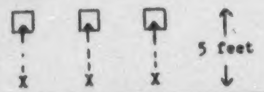
Title: Target Practice **Source:** Project Staff **Suggested Age Range:** 5-14

Materials:
4-6-inch balls, 1-inch masking tape
8-inch-square target placed 1 foot off the floor

Play Groupings:
individual play

Organization:

☐ = 8-inch target



Related Social Skills:
-exhibits courtesy toward others in taking turns
-exhibits tolerance for others in participating in activity

TEACHING STRATEGIES

General Directions	Specific Directions
Organize students as diagrammed above. State or demonstrate that the object of the game is to hit the target as many times as possible out of a number of tries allowed. Practice the game to be sure that all students understand how to play. Play the game, teaching and/or assessing the overhand throw for accuracy when appropriate.	Place 8-inch-square targets on wall 1 foot off the floor. Have students begin throwing at the targets from a distance of 5 feet. Say: THROW THE BALL AT THE TARGET. TRY TO HIT THE TARGET EVERY TIME YOU THROW. Have students practice. Increase the distance from the target to 10 feet. Say: NOW YOU GET THREE THROWS AT THE TARGET. EVERY TIME YOU HIT IT YOU GET A POINT. LET'S SEE WHO CAN GET THE MOST POINTS AND WIN THE GAME. After each student has 3 throws at 10 feet increase the distance to 15 feet, 20 feet, 25 feet, etc., up to 50 feet. Allow 3 throws per student at each distance. Emphasize throwing hard and directly at the target. When all students understand the game, step to the side and give instructions as to increasing distance from the target. Instruct and/or assess as the game is played.
	Teaching Alternatives
	1. Make a "bull's eye" on the target with colored areas worth varying point values. 2. If a student fails all three attempts at one distance, give him an extra try at a closer distance where he can be successful. 3. Team competition may be encouraged by allowing each team member three throws and totaling points for each team.

Student Progress Record

MODULE: Object Control Skills

Name:____________________

Birthdate:____________________
month year

SPECIFIC SKILLS

Levels of Student Performance	Underhand Roll	Underhand Throw	Overhand Throw	Kick	Continuous Bounce	Catch	Underhand Strike	Overhand Strike	Forehand Strike	Backhand Strike	Sidearm Strike
Primary											
EO 1											
EO 2											
EO 3											
EO 4											
EO 5											
	mo. | yr.*	mo. | yr.	mo. | yr.	mo. | yr.	mo. | yr.	mo. | yr.	mo. | yr.	mo. | yr.	mo. | yr.	mo. | yr.	mo. | yr.

---

* Record month and year in which the level of performance was attained.

MODULE III: FUNDAMENTAL SKILLS

Performance Objective: Overhand Throw

Teacher's Manual:

Content and Step I, Outline with Flow Chart

CONTENTS

Page

HOW TO USE THE I CAN TEACHER'S MANUAL 1

ACKNOWLEDGEMENTS 2

I CAN PROJECT STAFF AND COMMITTEES 3

WRITERS AND EVALUATORS 4

FIELD TEST CENTERS 5

INTRODUCTION 7

I CAN: WHAT IT IS:
  Programmatic Research Project In Physical Education 7
  The I CAN Instructional System 10
  Evaluation and I CAN 13

I CAN: WHERE IT'S GOING:
  Curriculum End Product 20
  Projected Time-Table for the Future 21

SECTION ONE: HOW TO IDENTIFY GOALS 24
  Flowchart 24
  Outline 25
  How To Do It 26

SECTION TWO: HOW TO PLAN A PROGRAM 36
  Flowchart 36
  Outline 37
  How To Do It 38

SECTION THREE: HOW TO BEGIN 55
  Flowchart 55
  Outline 56
  How To Do It 57

SECTION FOUR: HOW TO PLAN INSTRUCTION 64
  Flowchart 64
  Outline 65
  How To Do It 67

SECTION FIVE: HOW TO MODIFY PLANS BASED ON CHANGE 80
  Flowchart 80
  Outline 81
  How To Do It 82

SECTION SIX: HOW TO REPORT CONTINUOUS PROGRESS 89
  Flowchart 89
  Outline 90
  How To Do It 91

APPENDIX A: Primary Skill Resource Modules: The Scope (Modules with POs)
APPENDIX B: Student Functional Vocabularies by Module
APPENDIX C: Teacher Vocabulary by Module

CONTENT

Table | Page
1. Overview of the Major Questions of Interest in the Phase II Evaluation of I CAN 17
2. A Projected Timetable for the Development of I CAN . . 22

LIST OF FIGURES

Figure | Page
1. Major Steps in the I CAN Curriculum Development . . . 8
2. The I CAN Curriculum Structure for Organizing Content and Materials 11
3. Teacher Behavior Model 14
4. Materials Design 15
5. Schematic of the Revision Process 18
6. Functions of a Service-Oriented Progammatic Research and Development Center 23
7. Potential Goal Areas in Physical Education 28
8. Goal Areas of Education 29
9. Priority Goals by Age Level 30
10. Program Plan Worksheet 31
11. I CAN Modules Which Operationalize Physical Education Goals 32
12. Optimal Skill Attainment by Age Level 33
13. Program Plan Worksheet 40
14. Program Plan by Week 41
15. Program Plan Weekly Activities 43
16. Program Plan by Week 59
17. TAA: Catch 60
18. PO for Catch 61
19. Catch 62
20. Catch 69
21. TAA - Catch 70
22. Sample Daily Session 73
23. TC - Catch 74
24. Catch 84
25. Planning Option Chart 87
26. Estimate of Quality of Instruction 88
27. Example Student Progress Record 93

Outline

What is a Program Goal?

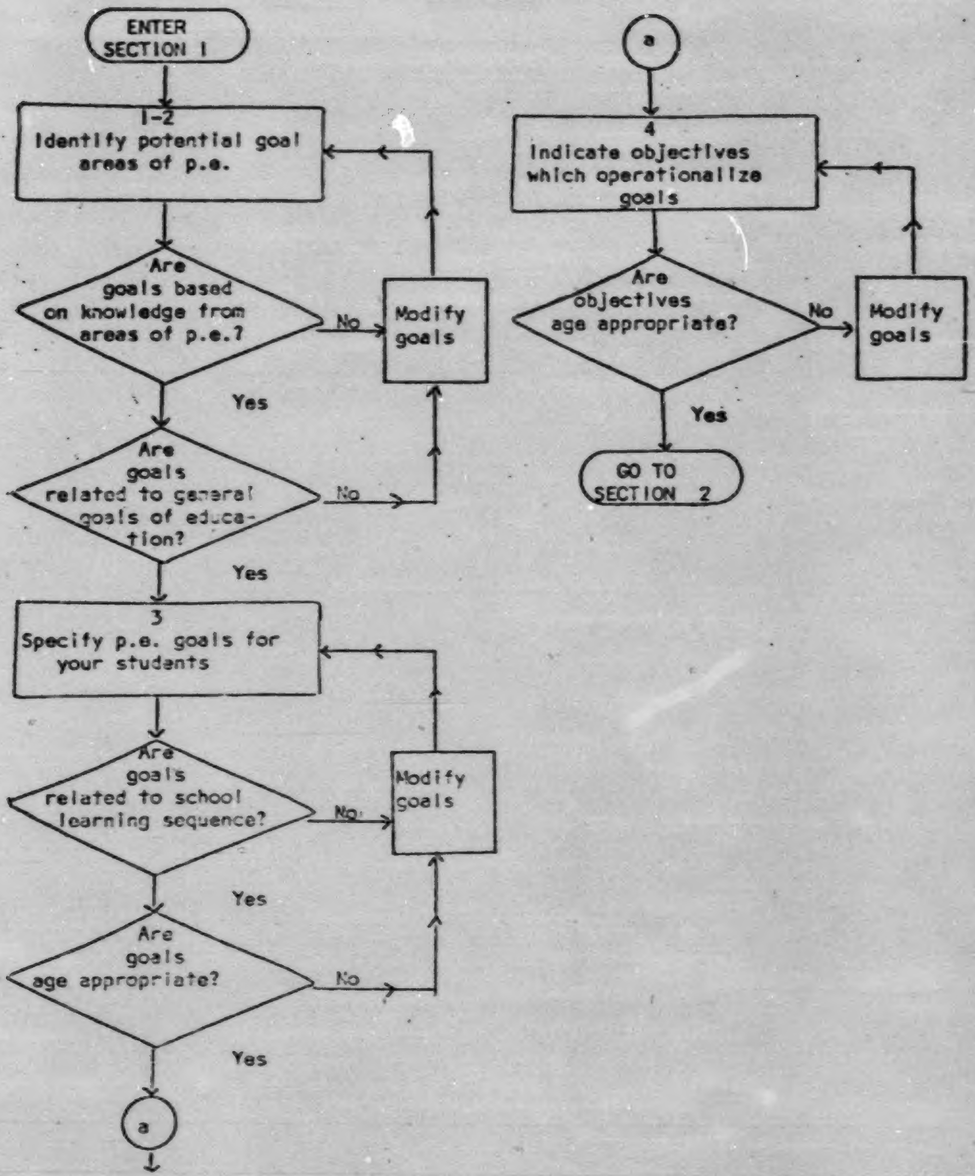
A program goal is a broad statement of direction, purpose, and intent of instruction.

How are Goals Identified?

Steps	Decision Aids
1. Identify potential goal areas of physical education.	1. - knowledge from areas of physical education
2. Examine the general goals of education in order to understand their relationship to physical education goals.	2. - state goals - school goals - special education goals
3. Specify goals for your students in physical education.	3. - school learning sequence - student age
4. Based on the priority goals for your students, indicate the objectives which you would optimally choose to operationalize those goals.	4. - student age

SECTION ONE
HOW TO IDENTIFY GOALS

Flowchart


ENTER SECTION I
1-2
Identify potential goal areas of p.e.
Are goals based on knowledge from areas of p.e.?
No
Modify goals
Yes
Are goals related to general goals of education?
No
Yes
3
Specify p.e. goals for your students
Are goals related to school learning sequence?
No
Modify goals
Yes
Are goals age appropriate?
No
Yes
a
a
4
Indicate objectives which operationalize goals
Are objectives age appropriate?
No
Modify goals
Yes
GO TO SECTION 2

APPENDIX E: DISSEMINATION ACTIVITIES

1. Conferences/Conventions Presentations
    - Overview
    - Papers Presented
    - Workshops Presented
2. Publications
    - Newspaper Announcements/Articles
    - Professional Journal/Monographs
3. Inquiries/Mailing List/Visitors
    - Overview of Inquiries/Mailing List
    - Listing of Visitors
4. Preservice Education Programs: Implementing I CAN
    - Undergraduate Experiences
    - Graduate Experiences
    - Interdisciplinary Services

1. Conference/Convention Presentations

1.1 Overview of Convention/Conference Presentations

	Organization	National		State		Midwest	
		Mon.	Yr.	Mon.	Yr.	Mon.	Yr.
Year 3 (Sept. 1973 - Dec. 1974)	Michigan Association for Health, Physical Education and Recreation			Nov.	1973		
	Council for Exceptional Children	April	1974				
	State Directors of Health, Physical Education and Recreation	Oct.	1974				
	Midwest Association for Physical Education of College Women					Oct.	1973
	National Recreation and Park Association Convention	Sept.	1974				
	American Education Research Association	April	1974				
	American Association on Mental Deficiency	June	1974				
	Big Ten Body of Knowledge Symposium					Oct.	1974
Year 2 (Sept. 1972-Aug. 1973)	American Association for Health, Physical Education and Recreation	April	1973				
	Michigan Association for Health, Physical Education and Recreation			Oct.	1972		
	Council for Exceptional Children	April	1973				
	Midwest American Association for Health, Physical Education and Recreation					Mar.	1973

	Organization	National		State		Midwest	
		Mon.	Yr.	Mon.	Yr.	Mon.	Yr.
Year 2 Con't.	Allerton Sport Psychology Conference	May	1973				
Year 3 (Aug. 1972 June 1971)	American Association for Health, Physical Education and Recreation	April	1972				
	American Association on Mental Deficiency	May	1972				

2. Publications

1.2 Papers Presented

1.2.1 September, 1973 to December, 1974.

Wessel, J.A. Action-field research. Paper presented at the Midwest Association for Physical Education of College Women, Rockton, Illinois, October, 1973.

Knowles, C.J. Factors affecting motor skill acquisition: Implications for curriculum development. Paper presented at the Michigan Association for Health, Physical Education and Recreation, Grand Rapids, Michigan, November, 1973.

Vogel, P.G. Minimum performance objectives in physical education; A key to operationalizing the Michigan Accountability Model. Paper presented at the Michigan Association for Health, Physical Education and Recreation, Grand Rapids, Michigan, November, 1973.

Wessel, J.A. Assessment and accountability in physical education programming for handicapped children. Paper presented at the Council for Exceptional Children, New York City, April, 1974.

Vogel, P.G. and Carmichael, D.L. Research and Evaluation in curriculum development. Paper presented at American Educational Research Association, Chicago, April, 1974.

Wessel, J.A. and Peterson, C.A. and Knowles, C.J. Activity analysis and prescriptive programming: State of the art, purpose, procedures, applications. Paper presented at National Recreation and Park Association, Columbia, Missouri, September, 1974.

Wessel, J.A. The I CAN Curriculum: Individualized curriculum materials. Paper presented at State Directors of Health, Physical Education and Recreation Meeting, Gull Lake, Michigan, October, 1974.

Green, M. and Wessel, J.A. Learning resources for teachers of the handicapped: A direct inservice model. Paper presented at Michigan Association for Health, Physical Education and Recreation, Boyne Mountain, Michigan, October, 1974.

Vogel, P.G. and Knowles, C.J. The utilization of research in program planning: Implications for diagnostic/prescriptive teaching in physical education. Paper presented at Michigan Association for Health, Physical Education and Recreation, Boyne Mountain, Michigan, October, 1974.

Vogel, P.G. The effect of instructional time and teacher type on the achievement of selected fundamental motor skills by elementary age trainable mentally retarded children. Paper presented at Michigan Association for Health, Physical Education and Recreation, Boyne Mountain, Michigan, October, 1974.

Carmichael, D.L. Methodologies for program implementation. Paper presented at the Big Ten Body of Knowledge Symposium, Iowa City, Iowa, October, 1974.

Vogel, P.G. The role of research, curriculum development and evaluation in the conversion of knowledge into practice in physical education. Paper presented at the Big Ten Body of Knowledge Symposium, Iowa City, Iowa, October, 1974.

Wessel, J.A. Programming for the handicapped: Research to practice model. Paper presented at the Big Ten Body of Knowledge Symposium, Iowa City, Iowa, October, 1974.

Wessel, J.A. Curriculum educational planning and research: The changing pattern of curriculum-making for the handicapped. Paper presented at the Big Ten Body of Knowledge Symposium, Iowa City, Iowa, October, 1974.

1.2.2 September, 1972 to August, 1973.

Wessel, J.A. Programs for the handicapped: Status and future. Paper presented at Michigan Association for Health, Physical Education and Recreation, Boyne Mountain, Michigan, October, 1972.

Fuller, D. and Plack, J. Programs for the handicapped: Status and future. Paper presented at the Midwest Association for Health, Physical Education and Recreation, Columbus, Ohio, March, 1973.

Nester, G. Meeting the needs of the teacher and the student. Paper presented at the Council for Exceptional Children, Dallas, Texas, April, 1973.

Plack, J. Associated learnings: Strategies for a unified total curriculum. Paper presented at the Council for Exceptional Children, Dallas, Texas, April, 1973.

Wessel, J.A. Accountability roles: Curriculum developer. Paper presented at the Council for Exceptional Children, Dallas, Texas, April, 1973.

Plack, J. Learning theory which underlies the development of the I CAN Curriculum. Paper presented at Allerton Sport Psychology Conference, Monticello, Illinois, May, 1973.

Vogel, P.G. and Carmichael, D.L. Guidelines for evaluating the degree to which an educational product facilitates the implementation of an accountability system. Paper presented at the American Association for Health, Physical Education and Recreation, Minneapolis, Minnesota, April, 1973.

1.2.3 June, 1971 to August, 1972.

Vogel, P.G. The physical education curriculum: Guidelines for improvement. Paper presented at American Association for Health, Physical Education and Recreation, Houston, Texas, April, 1972.

Wessel, J.A. A model for curriculum development in physical education for mentally retarded children and youth. Paper presented at American Association of Mental Deficiency, Minneapolis, May, 1972.

1.3 Workshops Presented

1.3.1 September, 1973, to December, 1974.

Wessel, J.A. Project I CAN: Individualized curriculum designed for mentally retarded children and youth. Workshop presented at Council for Exceptional Children, New York City, April, 1974.

Wessel, J.A. et.al. Implementing an evaluative-prescriptive approach to physical education curriculum for the mentally retarded: I CAN curriculum. Workshop presented at American Association for Mental Deficiency, Toronto, Ontario, June, 1974.

1.3.2 September, 1972 to August, 1973.

Wessel, J.A. The call to accountability in educational programming for the TMR. Workshop presented at Council for Exceptional Children, Dallas, Texas, April, 1973.

2.1 Newspaper Publications

2.1.1 September, 1973 to December, 1974.

I CAN, *Instructor*, August/September, 1974, p.30.

Local school districts test MSU program. *Muskegon Chronicle*, Muskegon, Michigan, June 20, 1974.

New help for retarded kids. *Bay City Times*, Bay City, Michigan, June 20, 1974.

Schools test program to aid retarded children. *Jackson Citizen Patriot*, Jackson, Michigan, June 20, 1974.

New program teaches retarded. *MSU Scene*, Volume 1, Number 4, East Lansing, Michigan, June, 1974.

Special students take to gym. *Union Lake Spinal Column*, Union Lake, Michigan, May 23, 1974.

I CAN helps children do so. *State Journal*, Lansing, Michigan, May 17, 1974.

Research funds are 'recycled'. *MSU News Bulletin*, East Lansing, Michigan, April 4, 1974, 5(22).

I CAN project. *Special Education Edition*, Kalamazoo Public Schools, Kalamazoo, Michigan, April 1974, p.15.

I CAN. *Challenge*, AAHPER, March-April, 1973, 8(4).

Distinguished service awards. *The MAHPER Journal*, January, 1974, p.6.

2.1.2 September, 1972 to August, 1973.

A new curriculum is called I CAN. *AAHPER Update*, March, 1973.

I CAN. *Publishers Alert Service*, January, 1973.

Edwardsburg Argus, Edwardsburg, Michigan, December, 1972.

Jonesville Independent, December, 1972.

New Buffalo Times, December, 1972.

New curriculum tested for mentally retarded. *MSU News Bulletin*, East Lansing, Michigan, November 16, 1972, 4(9).

Gym class aids kids. Michigan State News, East Lansing, Michigan, November 10, 1972.

Throw the ball: Gym classes tailored for retarded. The State Journal, Lansing, Michigan, November 8, 1972.

College of Education, Newsletter. Michigan State University, East Lansing, Michigan, November 8, 1972.

2.1.3 June, 1971 to August, 1972.

Programmatic research. Challenge, AAHPER, March-April, 1972, 7(4), 2.

College of Education Newsletter, Michigan State University, East Lansing, Michigan, March 31, 1972, Spring term No. 1.

She teaches coordination to blind. The State Journal, Lansing, Michigan, January 31, 1972.

College of Education Newsletter, Michigan State University, November 12, 1971, Fall term, No. 8, p.1.

2.2 Professional Journals/Monographs

Project I CAN: Specially designed modular materials for handicapped children in special classes or mainstreaming. Michigan Association for Health, Physical Education and Recreation Journal, January, 1974, p.6.

I CAN. Michigan Association for Health, Physical Education and Recreation Journal, 1973, 3(3), 12.

Research and curriculum development for the handicapped. Michigan Association for Health, Physical Education and Recreation Journal, 1972, 2(2), 8-9.

Carmichael, D.L. Methodologies for program implementation. Proceedings of the Big Ten Body of Knowledge Symposium, Iowa City, Iowa, October, 1974, in press.

Vogel, P.G. The role of research, curriculum development and evaluation in the conversion of knowledge into practice in physical education. Proceedings of the Big Ten Body of Knowledge Symposium, Iowa City, Iowa, October, 1974, in press.

Wessel, J.A. Programming for the handicapped: Research to practice model. Proceedings of the Big Ten Body of Knowledge Symposium, Iowa City, Iowa, October, 1974, in press.

Wessel, J.A. Curriculum educational planning and research: The changing pattern of curriculum-making for the handicapped. Proceedings of the Big Ten Body of Knowledge Symposium, Iowa City, Iowa, October, 1974, in press.

Wessel, J.A., Peterson, C.A. and Knowles, C.J. Activity analysis and prescriptive programming: State of the art, purpose, procedures, applications. Proceedings of the National Recreation and Park Association, Columbia, Missouri, September, 1974, in press.

Wessel, J.A. and Vogel, P. (contributors). Planning Curriculum Development Monograph. (Mayer, W. Edit) BSCS, P.O. Box 930, Boulder, Colorado, March, 1975.

Wessel, J.A., Vogel, P. and Knowles, C.J. Programs for Moderately Retarded. Challenge 10:2, February-March, 1975.

Wessel, J.A. I CAN Curriculum Project: What it is. Where it's at. Where it's going. Journal of Health, Physical Education and Recreation, Summer 1975.

Wessel, J.A. Project I CAN: Individualized curriculum designed for mentally retarded. Education and Training of the Mentally Retarded. In press, 1975.

3. Inquiries/Visitors

3.1 Overview of Inquiries

3.1.1 1974 to February, 1975

	Board of Education	Colleges and Universities	Specialized Groups	State Departments	Students	Teachers-ISD	Parents	Other	Total
Eastern	4	7	3	6	3	23	1	3	50
Mountain	0	4	3	0	0	4	0	0	11
Pacific	0	7	0	0	0	8	0	1	16
Central	2	12	14	0	2	36	0	2	68
Other	4	2	4	0	0	3	0	0	13
Total	10	32	24	6	5	74	1	6	158

3.1.2 1972 to 1973

	Board of Education	Colleges and Universities	Specialized Groups	State Departments	Students	Teachers-ISD	Parents	Other	Total
Eastern	1	15	6	0	2	25	0	0	49
Mountain	2	3	3	0	3	3	0	0	14
Pacific	0	5	1	0	0	15	0	0	21
Central	0	14	10	3	3	38	0	4	72
Other	2	3	0	0	0	4	0	0	9
Total	5	40	20	3	8	85	0	4	165

3.2 Visitors to the I CAN Project Center

Ms. Barbara M. McLean
Director of Media Services
Project MORE
Bureau of Child Research
University of Kansas
P.O. Box 290
Parsons, Kansas 67357
Consultant
July 30-31, 1974

Mr. Dick Darnell
ISMRRD
130 S. First Street
University of Michigan
Ann Arbor, MI. 48108
July 17, 1974

Ms. Jeanette M. Kosier
Peoria Achievement
Stations System
P.A.S.S. Project
Peoria Public Schools
3202 N. Wisconsin Ave.
Peoria, Illinois 61603
March 18-21, 1974

Mr. Larry Gloecker
Special Education Consultant
New York State Department of
Education
Division for the Handicapped
55 Elk Street
Albany, New York
November 27, 1973

Dr. Bruce Dick
Department of Physical
Education
University of Wyoming
Laramie, Wyoming 82071
July 24, 1973

Dr. Walter F. Ersing
School of Health, Physical
Education and Recreation
Ohio State University
337 West 17th Avenue
Columbus, Ohio 43210
July 11-12, 1973

Dr. Edward L. Meyen
University of Missouri
Department of Special
Education
515 South Sixth Street
Columbia, Missouri 65201
May 23-25, 1973

Dr. Robert Longshore
Oak Grove Training Center
1527 Lincoln
Panama City, Florida 32401
May 17, 1973

Mr. Max Mueller
Projects and Program
Research Branch
Division of Research
Bureau of Education for the
Handicapped
RPB Building
7th and D Streets, S.W.
Washington, D.C. 20202
September, 1971

4. Preservice Education Programs

These related teaching and training programs are designed to disseminate and promote utilization of the I CAN Instructional System. Research findings will assist in reducing the usual long intervening delay between curriculum development and its wide application and practice.

1974-75

4.1 Present Course Offerings and Titles Specifically Relevant to I CAN:

Undergraduate Experiences

HPR 452 Physical Education for the Handicapped

3 Credits Fall and Spring

Description: Procedures and techniques for implementing physical education curriculum materials (I CAN) for handicapped populations. Content includes assessment, prescription, planning, teaching, evaluating, adapting materials and generating alternative teaching methodologies.

Teaching: Diagnostic prescriptive activities to meet the needs of the learner: The I CAN Instructional System.

(a) Utilize assessment tools in diagnosing student's strengths and needs of mentally retarded children and youth (Diagnostic Function).

(b) Teach and prescribe teaching/learning activities based on student's status (Prescriptive Function).

(c) Assess the relative effectiveness of the teaching/learning activities (Quality Control Function).

(d) Generate and write relevant teaching/learning experience based on assessment data (Teacher Feedback Evaluation Forms).

(e) Generate and write alternate teaching methodologies for specific teaching/learning activities.

HPR 403 Directed Field Placement in I CAN Field Test Center

Variable Credit Fall, Winter, Spring, Summer - arranged by Advisor

ED 436 Student Teaching
Special Assignment to Demonstration School Site Using I CAN.

4.2 Present Course Offerings and Titles Specifically Relevant to I CAN:

Graduate Experiences

HPR 819 Physical Education and Recreation for the Mentally Handicapped

3 Credits Spring

Description: Relationship of literature and research to the application of physical education and recreation programs for the mentally retarded. Content to include socio-leisure and activity needs and services available to the physically handicapped, analysis of developmental sequences in physical growth, motor patterns, psycho-social learnings, teaching and leadership techniques, program development, modification and adaptation, principles of evaluation in schools, institutions and community agencies.

HPR 882 System's Approaches to Curriculum and Program Planning - Seminar

3 Credits Fall

Description: Principles and practices related to system's apparatus, accountability models and innovative planning techniques in curriculum and program planning.

HPR 882 Seminar - Systems Program Design

3 Credits Winter

Description: The application of system's planning techniques to the design of programs. Students will develop programs in their major emphasis.

HPR 882 Seminar - Program and Curriculum Evaluation

3 Credits Spring

Description: Content and design of evaluation plans for the use with curriculum and programs developed with system's approaches.

HPR 850 Independent Study: Evaluation Research of the I CAN Instructional System

Variable Credit Fall, Winter, Spring, Summer - arranged by Advisor

HPR 885 Direct Field Placement at I CAN Field Test Sites

Variable Credit   Fall, Winter, Spring, Summer - arranged by Advisor

HPR 897 Internship - Variable Credit

or 899 Thesis - Variable Credit

or 889 Project - Variable Credit

4.3 Interdisciplinary Services: Seminar Presentations

Fall, 1971 Interdisciplinary Seminar

Topics

Battle Creek Curriculum Plan (Scope Chart and Master Plan)
Physical Education Curriculum Plan
Mentally Retarded Project
Procedural Steps for Application
Physical Skill Learning
Sequential Motor Development
Activity Sequences for Physical Skills - TMR
Cognitive Learning
Learning Characteristics - MR
Affective Learnings
MR Characteristics
Instructional Strategies and Application to MR
Validation of Learning Hierarchies

Participants

Janet A. Wessel, Professor
Health, Physical Education and Recreation

Paul Vogel, Assistant Professor
Health, Physical Education and Recreation

Jeralyn Plack, Assistant Professor
Health, Physical Education and Recreation

Vern Seefeldt, Assistant Professor
Health, Physical Education and Recreation

Winter, 1972 Interdisciplinary Seminar

Topics

Critique, the General Evaluation Model
Decision Making: Pros and Cons of the General Model

Specification of Variables: Antecendent
Transaction
Outcome

Application Evaluation of Teaching/Learning Strategies
Decision Making: Pros and Cons of "Key" Variables
Instrumentation
Measuring Cognitive, Psychomotor and Affective Variables (Student Performance, Teacher Reactions, Administrative Reactions, Parent Reactions, and Significant Other's Reactions)
Establishing Validities and Reliabilities for the Measures
Formative-Summative
Role of Media in Evaluation for the Trainable Mentally Retarded
Research Procedures
Formative-Summative (Design, Sample Size and Analysis Considerations)
Decision Making: Instruments and Procedures

Participants

Janet A. Wessel, Professor
Health, Physical Education and Recreation

Paul G. Vogel, Assistant Professor
Health, Physical Education and Recreation

David Fuller, Assistant Professor
Health, Physical Education and Recreation

Jeralyn Plack, Assistant Professor
Health, Physical Education and Recreation

Lee Shulman, Professor
Counseling and Personnel Services

Howard Teitelbaum, Associate Professor
Office of Medicine, Education, Research and Development

Paul Wilt, Professor
Education

Maryellen McSweeney, Professor
Counseling and Personnel Services

Spring, 1972 Associated Learnings Seminar

Topics

Identifying associated learnings (concepts, facts, and skills) from other curricular areas for the Trainable

Retarded relevant to program materials in the physical education curriculum.

Developing procedures for correlating these learnings for the classroom teacher and for the physical education teacher.

Designing instructional strategies (teaching and learning activities) for the classroom teacher and for the physical education teacher.

Providing means of communicating between/among classroom teachers and physical education teachers.

Participants

Paul Vogel, Assistant Professor
Health, Physical Education and Recreation

PROGRAMS FOR THE SPECIAL CHILD

Graduate Studies
Internship - Project - Thesis (Examples)

Specific Focus for 1974-75

Internship:

1. Teaching and evaluating diagnostic prescriptive instructional materials with target populations of children.
2. Developing and implementing instructional materials for teachers, aides, and parents.
3. Developing, modifying, adapting instructional materials with other population groups: learning disabilities, emotionally disturbed, mentally retarded, visually and/or physically impaired.

Project:

1. Generating and writing instructional materials for specific target population in a specific school-community-local setting.
2. Methods and tools to implement innovative programs in school-community-local setting (training programs for teachers, parents, aides and administrative personnel).
3. Collating, analyzing, and evaluating data on on-going I CAN Research Project instructional materials and assessment of instruments.
4. Developing audio-visual instructional materials (postures, charts, films, filmstrips, tapes, etc.).

Thesis:

Evaluation Studies for Target Populations

1. Design and construction of evaluation instruments for assessment of students.

    Cognitive Skills - Concepts
    Psychomotor Skills - Leisure skills and pre-preschool
    Affective Skills - Personal - Social

2. Design and construction of evaluation instruments and procedures for evaluating effect of program and/or materials.

3. Evaluating school-community leisure programs.

Learning/Teaching Studies for Target Population Group

4. Conditions influencing student achievement: time, teacher type, reinforcement, over learning, teaching method (command, inquiry, discovery, etc.), prerequisite skills.

APPENDIX F

WORKING PAPER 4

I CAN

Instructional Physical Education Curriculum
Materials for the Trainable Mentally Retarded

Working Paper 4

The Development of Instructional Objectives

September 1972

Director:
Janet A. Wessel, Ph.D.
Room 135 W.I.M. Bldg.
MICHIGAN STATE UNIVERSITY
East Lansing, Michigan 48823

Authors:
Donald L. Carmichael
Paul G. Vogel

The Development of Instructional Objectives

In an effort to insure uniformity and quality of the I CAN instructional materials, this paper is presented to be used by all program developers. In the Formative Evaluation Working Paper #9, the components of a technically acceptable objective are presented along with a checklist for self-analysis of objectives. This paper is intended to supplement that information by outlining a guide for writing the objective, providing criteria for generating standards, and supplying a number of technically acceptable objectives from the various developmental models. Program developers should be thoroughly familiar with the material in Working Papers #4 and #5 and keep them on hand for referral.

Writing the Objective:

It may be helpful to use the following guide[1] to insure that your objective conforms to acceptable technical standards:

Ask yourself: "How will I test students at the end of instruction?"

1. Conditions: Given ______________________________
   Such as: (examples) ______________________________
   Aids or Restrictions: ____________________
2. Behavior. The student will: ____________________
3. Standards[2] (use one or more of the following):
   Time limit: _____ Speed _____ Accuracy ________
   According to: ______________________________
   So well that: ______________________________
   In a manner characterized by: ____________

Criteria for Generating Standards

In making decisions regarding the standards for a given objective, it may be helpful to first ask, "What is the probability of an untrained person achieving the objective by chance?" Once this is answered, the choice of the standard of performance may be made with the intent of eliminating chance as a factor. Also, the level of stability chosen often may be guided by:

---

[1] Adapted from Davis, R.H., *et. al.*, *Learning System Design*, East Lansing, Michigan: Michigan State University, 1972.

[2] See criteria for generating standards.

1) the ratio of successes to opportunities that the student is likely to have in the normal situation;

2) the degree to which the performance is critical;

3) or, if the student must apply this learning after a long time interval.

Several examples of technically acceptable objectives from various module content areas are attached.

Sample Objectives

Module 1 - Physical Awareness (TPO 2)

When given the following names of small body parts, the student will point to each of them on his own person without the aid of prompts or observation of the responses of others:

a) eyes
b) ears
c) nose
d) mouth
e) hands
f) fingers
g) elbows
h) feet
i) toes
j) knees
k) heels

Module 2 - Fundamental Skills (TPO 8)

Given a verbal request, the student can throw a tennis ball 2 out of 3 times in a manner characterized by:

a) weight transfer to the foot opposite the throwing arm

b) a near complete extension of the throwing arm during the windup for the throwing action followed by a forward motion above and outside of the shoulder

c) a follow through well beyond the ball release and toward the opposite knee

d) marked hip and spine rotation in preparation and execution of the throwing motion

Module 3 - Rhythmical Skills (TPO 3)

Given the direction "clap, clap, ready, clap (stamp)" and an even drum beat by the teacher, the student can mark time to an even rhythm by:

a) clapping four consecutive beats in rhythm.

b) stamping four consecutive beats in rhythm.

Module 4 - Postural Skills (TPO 2)

Given a model, picture, or demonstration of good and bad actions of different body parts during walking, the student will choose the correct action, two out of three times, when asked by the teacher, "Which is the correct way to have your body parts when walking?"

Body Part	Correct Action
a) head	erect aligned over shoulders
b) shoulders	blades flat, over hips
c) hips	balanced over legs
d) knees	slightly flexed
e) feet	straight ahead
f) heels	take initial weight change
g) arms	swing in opposition

Module 5 - Gymnastics (TPO 2 - EO 3)

Given a verbal request, the student can perform a front scale 2/3 times in a manner characterized by:

a) even weight distribution on one leg with the opposite leg extended backward until it and the body trunk are parallel to the floor.

b) arms are extended to the sides

c) head is held up facing forward

Module 6 - Aquatics (TPO 7 - Finning - Level I)

Upon request the student can flutter kick 20' on the back in a manner characterized by:

a) an alternating vertical displacement of the legs of 10" - 14"

b) ankles extended, toes pointed slightly inward

c) major force application from the hips

d) knees straight as downkick is initiated and slightly bent at termination of downkick and during initiation of the upkick

e) toes only break surface

f) arms at sides

Module 7 - Physical Health Skills (TPO 3)

Given a verbal request, the student can perform 20 bent-knee sit-ups in a manner characterized by:

a) laying in a supine position with knees bent and feet flat on floor

b) hands grasping opposite shoulders

c) sit-up and turn trunk to right (left) touching elbow to opposite knee

d) continue motion alternating sides

e) feet flat on floor at all times

APPENDIX G

WORKING PAPER 5

I CAN

Instructional Physical Education Curriculum Materials for the Trainable Mentally Retarded

Working Paper 5

Statement of Technical Quality of Instructional Objectives

September 1972

PROGRAMMATIC RESEARCH PROJECT

Director:
Janet A. Wessel, Ph.D.
Room 135 W.I.M. Bldg.
MICHIGAN STATE UNIVERSITY
East Lansing, Michigan 48823

Authors:
Donald Carmichael
Paul G. Vogel

Statement of Technical Quality of Instructional Objectives

The instructional objectives of the I CAN Material, as represented by the Enabling Objectives (E.O.) and Competency Measures (C.M.), should be a clear and observable description of the behavior expected of a learner after instruction. As such, each objective should be comprised of three component parts:

1) behavior - observable performance by the student following instruction

2) conditions - the situation in which the behavior will be demonstrated (should approximate the "real world" as closely as possible)

3) standards - which should indicate:
   a) the minimal level of acceptable performance
   b) level of stability - the number of opportunities to be given and the number of times one must succeed

CHECKLIST

Technical Quality of Objectives[1]

In order for an objective to be technically acceptable for the purposes of this project, one must be able to answer each of the following questions positively as it relates to the objective:

1. Can you readily identify the behavior which is to be demonstrated by the student following instruction? (underline the behavior)

   Yes____ No____

2. Can you readily identify the conditions under which the behavior will be demonstrated? (bracket the conditions)

   Yes____ No____

---

[1] Adapted from Davis, R.H., et.al., Learning System Design, East Lansing, Michigan: Michigan State University, 1972.

Technical Quality of Objectives Checklist (con't)

3. Can you readily identify the standards to which the behavior of the student must conform?
(circle the standards)

Yes____ No____

(optional)

a) Is the proportion of successes needed in the "real world"?

Yes____ No____

b) Is this proportion of successes needed for retention?

Yes____ No____

4. If two of your colleagues looked at this objective and a student's performance, could they agree whether or not the standards and limits had been achieved?

Yes____ No____

APPENDIX H

I CAN Field Test Participation Agreement

FIELD TEST PARTICIPATION AGREEMENT

The following lines detail the commitments of teachers; schools, centers or districts; and the PROGRAMMATIC RESEARCH PROJECT Staff relative to field testing the I CAN curriculum during the 1973-74 school year.

A. The Teacher Should:

1) be highly recommended
2) be willing to spend extra time in preparation of the I CAN materials
3) be willing to work with the I CAN Staff and participate in a training session prior to implementation and other training sessions as mutually scheduled
4) be willing to teach the materials in at least 1 elementary program
5) spend a minimum of 70 minutes per week teaching the I CAN materials
6) be willing to complete evaluation reports (a small honorarium will be provided upon receipt of feedback)
7) agree to occasional observers

B. The Center, School or District Should:

1) agree to the involvement as a field test site
2) agree to presence of occasional observers in the class
3) agree to support the inservice education of participating teachers by providing released time up to as much as 5 days total
4) provide for a minimum of 70 minutes of scheduled physical education time per week
5) provide the teacher with the equipment necessary to implement locally selected I CAN curriculum components
6) be willing to supply at no expense, class roster with selected information on background of each child
7) be willing to supply clearance for each child to participate in the field test*

C. The I CAN Project Will:

1) provide the district with at least 1 set of I CAN materials
2) provide revised materials at cost when available

---

*See Page 3-5 of this attachment for sample forms used by the Beekman Training Center for such permission. Such forms must be on file at the University to assure approval of the use of human subjects. Page 5 of this attachment supplies the necessary clearance in the portion related to University affiliation. Page 3 satisfies our need to provide clearance evidence to the University and the United States Office of Education.

3) provide inservice education relevant to implementing I CAN and individualizing instruction
4) credit involved teachers in published versions of I CAN
5) provide support service - on-site and by phone - to assist in problem areas
6) provide a copy of the evaluation report if requested

I have reviewed and find the commitments of the Field Test Participation Agreement acceptable and wish to participate in the field testing of I CAN.

Signed: ______________________
(Authorized Administrator)

School(s): ______________________

School District: ______________________

APPENDIX I

I CAN EVALUATION HANDBOOK FOR FIELD TEST TEACHERS

THE I CAN EVALUATION HANDBOOK

Field Test Teacher's Guide to the Use of the I CAN Evaluation Forms

Evaluation Staff:
Paul G. Vogel
D. Larry Carmichael

January, 1974

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Field Service Unit in Physical Education and Recreation for the Handicapped
Project I CAN

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PROJECT DIRECTOR
Janet A. Wessel, Ph.D.
Room 135 WIM Building
MICHIGAN STATE UNIVERSITY
East Lansing, Michigan 48823
Phone: (517) 355-4740

The I CAN Physical Education Curriculum Materials were developed under a Grant with the Office of Education, U.S. Department of Health, Education and Welfare, Bureau of Education for the Handicapped. Project No. 322718. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred.

Introductory Comments

The staff of the I CAN Project welcomes the Field Test Teachers to our curriculum development effort. Some special comments which reflect the unique contribution of the Field Test Teachers to this project are in order at this time.

We are interested in gathering evaluative information from the teachers for the purpose of improving these materials. The key idea here is that it is the materials which are being evaluated, not the Field Test Teachers. All aspects of our program from the Teacher's Guide to the consultant services are under examination and are fair game for comments and criticisms. We re-emphasize the fact that our materials, as of right now, are labeled Field Test Copy. As such, we recognize that there are many deficiencies in them. We are dependent upon the feedback from the Field Test Teachers to provide us with deficiencies, possible alternatives, and a rationale for the change.

With the busy schedules and many duties of our Field Test Teachers in mind, we have made every attempt to formulate our information gathering instruments such that: (1) we do not impose too heavily upon valuable time; and (2) only the information needed to answer the crucial evaluative questions has been solicited. The information asked for is designed to provide us with data related to the feasibility, usability, and effect upon student performance of the I CAN materials.

As an I CAN Field Test Teacher you are a key individual in the development of the I CAN materials. Full-time teachers are the most reliable source of information needed if we are to develop and further refine these materials.

The I CAN Evaluation Handbook

This handbook is intended to serve as a guide to the Field Test Teacher in the use of the I CAN Evaluation Forms. A sample of each data collection form is included with directions for the completion of each item on the form. Also, a completed sample of each form is appended to provide an example of the kind of responses which would be of most benefit to those who will be utilizing the feedback data.

TABLE OF CONTENTS

Page

Determining Student I.D. Numbers 1

Teacher Feedback Form 2
    Form 3,5,7,9
    User's Guide 2,4,6,8
    Sample Completed Form 10

Student Performance Score Sheet 15
    Form 17
    User's Guide 15
    Sample Completed Form 16

Teacher's Monitor Form 18
    Form 20,22,24,26
    User's Guide 19,21,23,25
    Sample Completed Form 27

Student Data Sheet 31
    Form 32,34
    User's Guide 31,33
    Sample Completed Form 35

I CAN Reaction Postcards 37
    Cards 37
    User's Guide 38

I

DETERMINING STUDENT I.D. NUMBERS

__Directions to the Teacher:__

1. Procedure for determining student identification (I.D.) numbers

   1.1 Arrange your class in alphabetical order by the time you complete the first __Terminal Performance Objective - Teacher Feedback Form__

   1.2 Assign numbers sequentially 1, 2...N to the students as they are arranged from A to Z

   1.3 All additions to your class should be added to the end of your class list, as they occur, independent of alphabetical arrangement

   1.4 All drops from your class should be handled by writing the word "DROP", the student's name and I.D. number along with your name on a sheet of paper and forwarded along with one of your Teacher "Feedback" Forms to the Project Office at Michigan State University

SAMPLE PROCEDURE

Name		a	b	c	d	a	b	a	b	c	d		Comments
1. Bensen, Mark													
2. Boyd, Bill													
3. Burice, Sharon													
4. ~~Miller, mary~~ DROP													
5. Smith, Sue													
6. Williams, Sam													
(added) → 7. Abrams, Fred													
8.													
9.													
10.													
11.													
12.													

TEACHER FEEDBACK FORM

1. Form 3,5,7,9

2. User's Guide 2,4,6,8

3. Sample Completed Form . . 10

TEACHER FEEDBACK FORM USER'S GUIDE

This form represents the way that the developers of I CAN hope to receive the most valuable information upon which to make revisions. You will be given a number of these forms and asked to complete one for several of the Terminal Performance Objectives (TPO's) which you have chosen to teach.

A teacher feedback form (T.F.F.) should be started upon beginning to teach the material of a given TPO. This could mean that a number of these forms may be in the process of being completed at any given time. The steps and directions along with a sample form are included below.

STEP I

At the time instruction is initiated on a given TPO, the information on the top of the form should be completed - this includes:

1. teacher's names
2. date instruction begins
3. the name and number of the module - (i.e., Module III: Fundamental Skills)
4. the name and number of the TPO - (i.e. TPO 1 - Running)

STEP II

As each Teaching-Learning Activity (TLA) from this TPO is taught, information related to it should be filled in in Part I of the T.F.F. It is suggested that this be done immediately after teaching a TLA to keep the form up to date. You will need the TLA sheet, the assessment activity, your class roster, and the student performance score sheet to fill in Part I.

PART I

Question

1. You are asked to record the code number of each TLA taught. This code consists of the Enabling Objective (EO) number and the focal point letter. (For example, 2a means EO #2 focal point a.) Then check the box which characterizes your feelings about the content of that TLA. In instances where you feel some revision is in order, you are asked to record more specific information on the back of the page or attach additional sheets of paper. Please identify the deficiency, state a reasonable alternative and give reasons why you feel your suggestion is better. Your suggestions are most helpful to the Project Staff if they are received in this form. (See Sample T.F.F.)

2. This questions asks you to record the student I.D. numbers of students absent on the day which you taught this TLA.

3. You are asked to record the page number of each game used and then check the box which best characterizes your feelings about that game. Again, if you feel that a game is deficient you are asked to suggest revisions using the same format as in question #1. Use the available space, the back of the page, or attach an extra sheet.

TERMINAL PERFORMANCE OBJECTIVE

TEACHER FEEDBACK FORM

TEACHER: ______________________ **DATE:** ______________ **MODULE:** ____________
month/date **TPO #:** ____________

DIRECTIONS:

Please complete the first part of this form for each Teaching-Learning activity as it is taught. When you have finished instruction in this Terminal Performance Objective complete the items listed under Part II and return the form to MSU.

PART I

INSTRUCTIONAL MATERIALS USED:

1.

	TEACHING-LEARNING ACTIVITY NUMBERS (Use 2a where 2 = EO No. and a = TLA focal point)							
Very Helpful								
Helpful								
Not Very Helpful								
Worthless: Omit								
2. Students Absent when taught (Use ID Number(s)								

NOTE: Please use the reverse side of this page to note appropriate revisions to a TLA. Cite the deficiency, your alternative(s) and why you feel the suggested revision is better.

3. Record the page number of each game activity used in the box which you feel is most appropriate.

	GAME ACTIVITY PAGE NUMBERS (Use III-2 where III - Module No. and 2 = Game Activity Sheet Page No.)							
Very Helpful								
Helpful								
Not Very Helpful								
Worthless: Omit								

Specific Suggestions:

4. Question #4 attempts to determine if the focal points of the EO's are the most accurate description of the student performance. Since these focal points are the key items which you look for during the student assessment, it is important to know if: 1) you could see these elements in your students; 2) there are other focal points which should be added; 3) there are focal points which are inaccurate. You are asked to record the EO #, fill in the letters for the appropriate number of focal points in that EO, and then check the box which best characterizes your feeling about each focal point. Again, you are asked to express your suggestions in the form of: 1) the deficiency, 2) the suggested alternative, and 3) the rationale for the suggested change.

5. Again, you are asked to record the TLA code number as it is taught. For every learning style which is listed on the left, you are to check the box to the right of it if it was used in teaching that TLA and you feel that it was "effective" (in your opinion, that style promoted student learning). It is possible that you may use a number of styles in teaching a TLA. Check all that you used effectively. Again, any significant comments which you can make related to your responses will be most helpful to the project staff.

6. Question #6 asks for your overall perception of the information given in a TLA. After the TLA code is recorded in a box, you are to check the category that best characterizes your feelings about that TLA. As always, your comments or suggestions for improvement are vital to our improving these instructional materials.

4. **Indicate the degree to which the focal points for activity (a's, b's, c's) of each enabling objective accurately portray student behavior as you observed it.**

EO #_____ EO #_____ EO #_____

Degree of Accuracy	a	b	c					a	b	c					a	b	c				
High																					
Moderate																					
Low																					
Inaccurate																					
Add																					
Delete																					

Identify the deficiencies of those elements rated low, inaccurate, add or delete:

5. **Check the effective learning styles that you used in teaching the TLA's within this TPO.**

(Use 2a where 2=EO No. and a=TLA Focal Point)

Learning Styles	TLA Numbers								
Manipulation									
Response Chaining									
Environmental Manipulation									
Modeling									
Verbal									
Inquiry									
Other									

Comments:

6. **The information provided in the TLA's was:**

TEACHING-LEARNING ACTIVITY NUMBERS
(Use 2a where 2 = EO No. and a = TLA Focus)

More than Necessary								
Sufficient								
Insufficient								
Inappropriate								

Comments:

7. a. This question represents an attempt to rate student reactions to the I CAN materials using your perceptions of their degree of attention to the TLA(s). You are asked to insert the approximate number of students in the boxes under the TLA code which you feel represents the attention that your class gave to the TLA. Comments, as usual, can increase the value of this information significantly.

b. Please record the student I. D. numbers of 4 students in your class who exhibited the most attention and 4 students who exhibited the least attention.

8. This question also gets at student reactions to I CAN by asking you to rate the willingness to participate in the activities of the TLA of your class. The format of this question is the same as question #7.

STEP III

Upon completing the teaching related to a TPO, you are to complete Part II of the TFF and return it to M.S.U. (either through your Field Test Consultant or by mail). Consider the content of the entire TPO in answering these questions.

9. An overall rating of this TPO as to its importance for Trainable Mentally Impaired students. Check the appropriate box.

7a. Student reaction as expressed by apparent attention to the teaching-learning activity(s):

TEACHING-LEARNING ACTIVITY NUMBERS
(Use 2a where 2 = EO No. and a = TLA focal point)

High								
Moderate								
Low								

In each box above record the approximate number of students characterized by each category

Comments:

b. Students who represented the extremes of student reaction: (i.e. most and least attentive)

(Record Student I.D. Nos.)

4 High ______ ______ ______ ______

4 Low ______ ______ ______ ______

8. Student reaction expressed by willingness to participate in activities of the TLA:

TEACHING-LEARNING ACTIVITIES
(Use 2a where 2 = EO Number and a = TLA focus)

Anxious to Participate								
Willing to Participate								
Neutral								
Unwilling to Participate								

In each box record the approximate number of students characterized by each category

Comments:

PART II

9. Please rate this TPO as to its importance for TMI students:

☐ Very Important ☐ Important ☐ OK ☐ Unimportant ☐ Worthless

10. This question asks you to review the statement of objectives for this TPO, and its EO's. Were these objectives stated in such a way that you could readily understand them? As always, a negative response accompanied with comments as to why and how the objective could be improved is the most useful feedback that we can receive.

11. This question can give us needed insight into media which could be developed to accompany our materials. Feel free to suggest, or list things that you did to supplement our materials.

12. This question provides us with feedback related to our student performance score scheet. One of our concerns is that we do not overlook student improvement which results from exposure to the I CAN materials. It may be that we have failed to capture all of the categories in which student performance will be altered on that form. Your constant exposure to the students places you in a key position to react to this question.

13. This question is designed to gather your reaction to the assessment activity which accompanies a TPO. As always, your most valuable contribution can be made by indicating those found to be deficient and explicating the way in which you feel the activity may be improved.

14. & 15. Questions #14 and #15 are included to provide a means for you to convey any comments, concerning suggestions, etc., which have not been covered in the preceding questions. This is a fine spot to mention outstanding things that happened related to this TPO (both positive or negative). As well as any other unanticipated results of working with this TPO. Such comments often prove to be very helpful to project staff.

10. Are the performance objectives of this T.P.O. clearly stated?

TPO: ☐ Yes ☐ No Comment:
EO: #___ ☐ Yes ☐ No Comment:
EO: #___ ☐ Yes ☐ No Comment:
EO: #___ ☐ Yes ☐ No Comment:
EO: #___ ☐ Yes ☐ No Comment:

11. Are there instances (EO's, TLA's) where pictures, films, posters, records or some other type of equipment or media would facilitate understanding or teaching parts of the terminal performance objective?

☐ Yes ☐ No Please describe: (Identify E.O. and/or TLA with your suggestions)

12. Please indicate below if students in your class improved in performance in a way which was difficult or impossible to record on the developmental inventory - student performance score sheet.

☐ Yes ☐ No Please describe:

13. The assessment activity for this TPO is very effective for determining levels of student performance.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

When you feel neutral or disagree, please comment on ways you improved this segment:

14. Please write any feelings you have about how the content or method related to this TPO can be improved.

15. Concerns or questions about content or procedure related to this TPO:

TERMINAL PERFORMANCE OBJECTIVE - SAMPLE

TEACHER FEEDBACK FORM

TEACHER: Tillie Teacher DATE: 1 / 74 (month/date) MODULE: III - Fund. Skills

TPO #: 1 - Run

DIRECTIONS:

Please complete the first part of this form for each Teaching-Learning activity as it is taught. When you have finished instruction in this Terminal Performance Objective complete the items listed under Part II and return the form to MSU.

PART I

INSTRUCTIONAL MATERIALS USED:

1\.

TEACHING-LEARNING ACTIVITY NUMBERS (Use 2a where 2 = EO No. and a = TLA focal point)

	1b	1c	1d					
Very Helpful		✓	✓					
Helpful	✓							
Not Very Helpful								
Worthless: Omit								
2. Students Absent when taught (Use ID Number(s)	3,6,9							

NOTE: Please use the reverse side of this page to note appropriate revisions to a TLA. Cite the deficiency, your alternative(s) and why you feel the suggested revision is better. (See Attached Sheet)

3. Record the page number of each game activity used in the box which you feel is most appropriate.

GAME ACTIVITY PAGE NUMBERS (Use III-2 where III - Module No. and 2 = Game Activity Sheet Page No.)

	III-2	III-4	III-5					
Very Heloful		✓						
Helpful	✓		✓					
Not Very Helpful								
Worthless: Omit								

Specific Suggestions:

III-2 - directions are confusing for this game - "first person" is used in a funny way - may be a typo error.

III-5 - found it best to use red and green flags or discs rather than merely showing the words.

1. 1b Deficiency: the TLA calls for heels to seat in running to get at a 90° angle of the non-support leg. Not enough mention made of the degree to which this may happen at different speeds of running; i.e., is it desirable for heels to be at seat in moderate speed running?

Alternative: Either indicate that this TLA is for fast running and teach it as such or indicate the degree to which this should happen in running at different speeds and incorporate non-support knee angle with different speeds of running.

Rationale: Heels to seat in running should not occur at moderate and slow speeds.

4. Indicate the degree to which the focal points for activity (a's, b's, c's) of each enabling objective accurately portray student behavior as you observed it.

EO # 1 EO # 2 EO # ____

Degree of Accuracy	a	b	c	d				a	b	~~c~~					a	b	c	d			
High			✓	✓																	
Moderate		✓																			
Low	✓																				
Inaccurate																					
Add					✓																
Delete									✓												

Identify the deficiencies of those elements rated low, inaccurate, add or delete:

E.O.#1 - add - foot placement - heel - ball - heel landing of foot (not a flat footed run).

E.O.#2 - delete - leaning backward here - it is covered in a.

5. Check the effective learning styles that you used in teaching the TLA's within this TPO.

(Use 2a where 2=EO No. and a=TLA Focal Point)

Learning Styles	TLA Numbers								
	1b	1c	1d						
Manipulation	✓	✓	✓						
Response Chaining	✓	✓	✓						
Environmental Manipulation			✓						
Modeling	✓	✓	✓						
Verbal		✓	✓						
Inquiry			✓						
Other									

Comments:

6. The information provided in the TLA's was:

TEACHING-LEARNING ACTIVITY NUMBERS
(Use 2a where 2 = EO No. and a = TLA Focus)

	1b	1c	1d					
More than Necessary			✓					
Sufficient		✓						
Insufficient	✓							
Inappropriate								

Comments:

(1b) I recorded my problem with this TLA in Question 1

7a. Student reaction as expressed by apparent attention to the teaching-learning activity(s):

TEACHING-LEARNING ACTIVITY NUMBERS
(Use 2a where 2 = EO No. and a = TLA focal point)

	1b	1c	1d					
High	8	9	7					
Moderate	2	1	1					
Low	2		4					

In each box above record the approximate number of students characterized by each category

Comments:

b. Students who represented the extremes of student reaction: (i.e. most and least attentive)

(Record Student I.D. Nos.)

4 High 2 3 7 10

4 Low 5 6 9 ____

8. Student reaction expressed by willingness to participate in activities of the TLA:

TEACHING-LEARNING ACTIVITIES
(Use 2a where 2 = EO Number and a = TLA focus)

	1b	1c	1d					
Anxious to Participate	7	8	8					
Willing to Participate	1	3	2					
Neutral	2	1	1					
Unwilling to Participate	2		1					

In each box record the approximate number of students characterized by each category

Comments:

Student #5 generally unwilling to take part in most physical activity.

PART II

9. Please rate this TPO as to its importance for TMI students:

☑ Very Important ☐ Important ☐ OK ☐ Unimportant ☐ Worthless

10. Are the performance objectives of this T.P.O. clearly stated?

TPO: ☑ Yes ☐ No Comment:

EO: # 1 ☑ Yes ☐ No Comment:

EO: # 2 ☐ Yes ☑ No Comment: Is student to be running 200 yds. when assessing both a and b ?

EO: # 3 ☑ Yes ☐ No Comment:

EO: #___ ☐ Yes ☐ No Comment:

11. Are there instances (EO's, TLA's) where pictures, films, posters, records or some other type of equipment or media would facilitate understanding or teaching parts of the terminal performance objective?

☒ Yes ☐ No Please describe: (Identify E.O. and/or TLA with your suggestions)

A tape or loop film of children running in various situations might be helpful in teaching content in E.O. #1

12. Please indicate below if students in your class improved in performance in a way which was difficult or impossible to record on the developmental inventory - student performance score sheet.

☒ Yes ☐ No Please describe: A number of students in this class seem to be running somewhat better - and are more willing to take part in running activities with the class — even though I cannot check all of the focal points for these children.

13. The assessment activity for this TPO is very effective for determining levels of student performance.

☐ Strongly Agree ☐ Agree ☒ Neutral ☐ Disagree ☐ Strongly Disagree

When you feel neutral or disagree, please comment on ways you improved this segment: I feel that I improved this activity by having all students run - stop for a break to work on Module II content - and then running again. I assessed individuals during the running periods.

14. Please write any feelings you have about how the content or method related to this TPO can be improved.

15. Concerns or questions about content or procedure related to this TPO:

STUDENT PERFORMANCE SCORE SHEET

1. Form 17
2. User's Guide 15
3. Sample Completed Form . . 16

STUDENT PERFORMANCE SCORE SHEET USER'S GUIDE

The Student Performance Score Sheet is to be used to record student status on the components of a given Terminal Performance Objective (TPO). It is intended to be used in conjunction with an Assessment Activity designed for that TPO. The various components of this form and their use are presented below:

1. **Name Column** - The names of the students in your class should be recorded on this form prior to class time. An alphabetical listing is suggested.

2. **Absent Column** - Place an X or 0 in the box in this column if a student is absent on the day you assess this skill. (X if initial assessment, 0 if reassessment.)

3. **Performance Levels** - These represent, in abbreviated form, the responses which comprise the Enabling Objectives of a TPO. These are the components which are to be considered in evaluating each student and are explained in full sentences on the Student Performance Level sheet for that skill found in the Developmental Inventory section (goldenrod) of your module materials.

4. **Format for Recording** - The format for recording student status is represented by an X or 0 placed in the box which represents a specific component (the a, b, c's) of a TPO. Each box is designed to accommodate one symbol. The use of an X or 0 is the key indicator of whether the recording is an initial assessment or a reassessment of the skills in a given TPO:

   X - an X is placed in the box for a specific component which a student has mastered upon initial assessment.

   0 - an 0 is placed in the box for a specific component which a student has mastered upon reassessment (during or after instruction on this TPO). An 0 thus indicates that the student has acquired this component since the time that the initial assessment was made.

   No Mark - a box left unmarked indicates that the student has not demonstrated performance which would indicate that he/she has mastered that component to the level specified in the performance objective.

5. **Primary Responses** - The primary response column provides for those students who need instruction or assistance in developing capacities which would enable achievement in this TPO. The letter which most nearly describes the response of this student may be entered in this column. (The responses are defined in the introduction to the developmental inventory of each module.)

6. **Comments** - This space provides an opportunity to note a word or phrase which might aid in characterizing the responses of this student. Can also be used to note responses elicited from students which are not described on the score sheet or are inconsistent with an earlier assessment.

STUDENT PERFORMANCE SCORE SHEET

Module: Fundamental Skills **TPO:** #1 Run

Instructor__________

School__________

Year__________

** **Primary Responses**

a = Non Attending
b = No Response
c = Unrelated Response
d = Other (specify in comments)

Scoring

Assessment = X
Reassessment = 0

PERFORMANCE LEVELS

		EO #1				EO #2		EO #3					
	Absent	a Consistent Non Support	b Non Support Knee	c Foot Placement	d Arm Opposition	a Accelerating and Decelerating	b Pacing	a Negotiates Course	b Bends Knees	c Changes Direction	d Leaning On Turns	Primary Responses**	
Name		a	b	c	d	a	b	a	b	c	d		Comments
1. Benson, Mark		X	X	X	X	O	O						
2. Boyd, Bill	X												
3. Burice, Sharon		X	O	X	O								
~~4. Miller, Mary~~ DROP													
5. Smith, Sue		X	O	X	O	O							
6. Williams, Sam		X	X	X									close, but needs a little work here (d)
7. Abrams, Fred		X		X									left arm a problem.
8.													
9.													
10.													
11.													
12.													

STUDENT PERFORMANCE SCORE SHEET

Module: Fundamental Skills **TPO:** #1 Run

Instructor____________

School____________

Year____________

* **Learning Style**

1 = Manipulation
2 = Modeling
√ = Verbal

Remember - this has been omitted from this form - ignore it!

** **Primary Responses**

a = Non Attending
b = No Response
c = Unrelated Response
d = Other (specify in comments)

Format

Pre = X Assessment ☐ Post = O Assessment

omit

		PERFORMANCE LEVELS	LEARNING STYLE*										
		Consistent Non Support	Non Support Knee	Foot Placement	Arm Opposition	Accelerating and Decelerating	Pacing	Negotiates Course	Bends Knees	Changes Direction	Leaning On Turns	Primary Responses**	
		E O #1				E O #2		E O #3					
Name	Absent	a	b	c	d	a	b	a	b	c	d		Comments
1.													
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													
11.													
12.													

TEACHER'S MONITOR FORM

1. Form 20,22,24,26

2. User's Guide 19,21,23,25

3. Sample Completed Form . . 27

TEACHER'S MONITOR FORM USER'S GUIDE

You will be asked to provide the I CAN Evaluation Staff with a number of self-reported accounts of what took place in your field test class on a specified day. This Teacher Monitor Form is the instrument onto which those reactions are to be recorded. You will be told specifically which class sessions are of interest to us. It is important for the I CAN Evaluators to have periodic accounts of what you feel is happening in your class.

It is suggested that this form be completed as soon as possible following the designated field test class meeting. The reactions which you record on this form should pertain only to your class on that day. If you encounter some unexpected interruption which prevents you from conducting class on that day, please note this on the top of the form and return it uncompleted to your Consultant.

Directions

The comments below correspond to similarly numbered items on the Teacher's Monitor Form, and are designed to aid you in properly completing this form.

Step 1

Fill in your name, the date, the number of students in your field test class, and the number of teachers and aides present in your class this day. Also record the code numbers for the I CAN material which was included in this lesson. Then proceed and answer each question.

Step 2

1. To what degree was the information and activities of this class a part of your long-term plan? Check the box which most nearly reflects the % of the class which was a part of your long-term plan.

2. Check the box which most nearly reflects the % of this class that was planned using student assessment data from a previous assessment. Comment if it will clarify your response.

3. In considering the prerequisites listed on the TLA(s) selected for your class, did you teach those which you had not previously taught or know that your children already have? Comment if it will clarify your response.

4. If you used game activities as a part of this lesson, check the box which most nearly represents the degree to which these activities related to specified lesson focal points. Comment if it will clarify your response.

TEACHER'S MONITOR FORM

Teacher: ____________________

Date: ____________________

No. Students: ____________________

No. Teachers and Helpers Present: ____

Modules	TPO	EO	TLA

1. Was this lesson taught as part of a predetermined long-range plan*?

☐ "All" (100-90%) ☐ Most (89-50%) ☐ Some (49-1%) ☐ None (0%)

2. Was this lesson organized based upon previous student assessment*?

☐ "All" (100-90%) ☐ Most (89-50%) ☐ Some (49-1%) ☐ None (0%) Comment:

3. In instances in which you judge your students as not having some prerequisite skills* listed on the TLA(s) selected, did you teach those prerequisite skills?

☐ Yes ☐ No Comment:

4. Were game activities* (if used) related to the specified lesson focal points*?

☐ "All" (100-90%) ☐ Most (89-50%) ☐ Some (49-1%) ☐ None (0%) ☐ Not Used

Comment:

---

*All terms to be interpreted as they are defined and explained in the I CAN Teacher's Manual.

5. Did you review what happened in this lesson (i.e. student performance, student interest) and make a decision about what you will do in the next lesson with this class? Check the appropriate box. Comment if it will clarify your response.

6. Did you include an introductory phase as a part of this lesson?

7. Was the primary emphasis (body) of this lesson the presentation or practice of specific I CAN instructional focal points?

8. Did you include a summary as a part of this lesson? Comment if it will clarify your response.

9. As you think about the TLA's you taught in this lesson, did any of them not go as well as you think they should? List the code numbers for these TLA's in the space provided. If you are filling out a Teacher Feedback Form on this TPO, you need not do any additional work on this question. If you are not filling out a Teacher Feedback Form on this TPO, please elaborate upon the deficient TLA(s) on a separate sheet citing the deficiency, alternatives and rationale.

5. Did you review what happened in this lesson and make an appropriate decision (i.e., review prerequisite, recycle, continue)?

☐ Yes ☐ No Comment:

6. Did you include an introductory phase* as a part of this lesson? (In the form of warm-up, review, prerequisite learnings or Health-Fitness work.)

☐ Yes ☐ No Comment:

7. Was the body of your lesson designed to present and/or practice specific I CAN instructional focal points*? (Could an observer easily determine each focal point included in your lesson?)

☐ Yes ☐ No Comment:

8. Did you include a summary* as a part of this lesson? (In the form of review of the focal points, reinforcement for tasks well done and/or motivation for further work.)

☐ Yes ☐ No Comment:

9. Did any of the TLAs taught appear deficient? (In your judgment were the students profitably engaged in learning activity related to the selected focal points?)

☐ Deficient ☐ OK

List deficient TLAs here:

	MODULE	TPO	EO	TLA
1.	____	___	__	___
2.	____	___	__	___
3.	____	___	__	___
4.	____	___	__	___
5.	____	___	__	___

NOTE: (Cite the deficiency, the alternative(s) and rationale for the alternative(s) on a separate 8 1/2 by 11 sheet and append to this form if you are not scheduled to complete a Teacher Feedback form on these TPO-TLAs.)

TPO - TLA Identification Code:

(1.23a where: 1 = Module, 2 = TPO, 3 = EO and a = TLA focal point)

10. If deficient TLAs are listed in Question 9, proceed to answer this question. You are asked to rate the degree to which you implemented the TLA(s) in question as was suggested on the TLA sheet. Rate your implementation according to the general directions (i.e., you could rate yourself "High" and not have used the specific word-for-word suggestions in the TLA).

11. Did you consciously plan for "double pay off" in putting together the components of this lesson? Comment if it will clarify your response.

12. Rate the degree of interest the students in your class showed toward this lesson (in general). It may be that the students generally responded to a specific TLA in a way which differed from the others in the lesson. In this case, list this TLA(s) code number and rate accordingly.

10. (To be completed if deficient TLAs are listed in Question 9.) Of those TLAs listed directly above what was the degree to which the instruction related to each focal point was implemented according to the specifications of the TLA? (Record above under "Implementation Dimension" using: 1 = as intended, 2 = high, 3 = moderate, 4 = low and 5 = not as intended.

Note: Judgments on implementation should be based on the intent of the TLA as suggested in the general directions column not on a word for word, item for item recital.

IMPLEMENTATION DIMENSION

	High	1	2	3	4	5	Low
1.		1	2	3	4	5	
2.		1	2	3	4	5	
3.		1	2	3	4	5	
4.		1	2	3	4	5	
5.		1	2	3	4	5	

(circle one)

11. Did you use the concept of "double pay off*" planning in this lesson?

☐ Yes ☐ No Comment:

12. In your opinion, the students with few exceptions responded to this lesson with:

☐ High Interest ☐ Moderate Interest ☐ Indifference

☐ Resistance ☐ Unable to Rate

Identify specific TLA discrepancies from this general reaction to the lesson - include TLA I.D. and interest level.

	MODULE	TPO	EO	TLA	HIGH	MOD.	INDF.	RESIS.	UNABLE TO RATE
1.	___	___	___	___	___	___	___	___	___
2.	___	___	___	___	___	___	___	___	___
3.	___	___	___	___	___	___	___	___	___

13. An opportunity to pass along particularly effective or inefficient techniques used as a part of this lesson. Be sure to indicate in some way why you feel as you do about the technique.

14. Occassionally, interruptions or circumstances of one kind or another will prevent the presentation of a lesson as you had planned it. If you check the "Yes" response on this day, list the TLA(s) affected by this problem and describe its nature.

15. This question asks you to rate the % of time that a typical student in your class, on this day, was "on task" (meaningfully engaged in activity directed toward a specific I CAN focal point). For example:

1. If all 16 members of your class are appropriately working on the same focal point and you teach them one at a time, the on-task time for one student would be 1/16 of the total class time.
2. If 4 of your class members are being taught on a focal point and the rest of the class members are actively engaged in practice on focal points already taught, the on-task time for one student would be 100%.

13. List and comment on motivational and/or reinforcement techniques used which were particularly effective-ineffective: (briefly include why you thought it was good or bad).

14. Were there interruptions which prevented the lesson from being conducted as was intended?

☐ Yes ☐ No

If yes, describe their impact. (List the TLAs affected.)

	MODULE	TPO	EO	TLA
1.				
2.				
3.				
4.				

15. You taught this lesson using the student assessment data to individualize instruction approximately:

☐ High Degree (50% on task time)

☐ Moderate Degree (50-25% on task time)

☐ Low Degree (Less than 25% on task time)

NOTE: Use the back of this page to record any anecdotal information which will be helpful to your remembering this lesson or which you judge to be of special significance (positive and negative occurances) to the developers of this lesson.

SAMPLE SAMPLE

TEACHER'S MONITOR FORM

Teacher: Klaudia Klutz

Date: 1/22/74

No. Students: 12

No. Teachers and Helpers Present: 2

Modules	TPO	EO	TLA
II	4	1	a
II	4	1	b
III	1	1	b
III	1	1	c
III	1	1	d

1. Was this lesson taught as part of a predetermined long-range plan*?

☐ "All" (100-90%) ☒ Most (89-50%) ☐ Some (49-1%) ☐ None (0%)

2. Was this lesson organized based upon previous student assessment*?

☒ "All" (100-90%) ☐ Most (89-50%) ☐ Some (49-1%) ☐ None (0%) Comment: I let the class shoot baskets for 3 min. at the end.

3. In instances in which you judge your students as not having some prerequisite skills* listed on the TLA(s) selected, did you teach those prerequisite skills?

☒ Yes ☐ No Comment:

With the exceptions which I felt were inappropriately listed as prerequisites. I noted those instances on a Reaction Postcard.

4. Were game activities* (if used) related to the specified lesson focal points*?

☐ "All" (100-90%) ☐ Most (89-50%) ☐ Some (49-1%) ☐ None (0%) ☒ Not Used

Comment: I plan to apply an appropriate game activity tomorrow.

---

*All terms to be interpreted as they are defined and explained in the I CAN Teacher's Manual.

5. Did you review what happened in this lesson and make an appropriate decision (i.e., review prerequisite, recycle, continue)?

☒ Yes ☐ No Comment: I decided to continue with TPO I one day longer than I had planned.

6. Did you include an introductory phase* as a part of this lesson? (In the form of warm-up, review, prerequisite learnings or Health-Fitness work.)

☐ Yes ☒ No Comment:

7. Was the body of your lesson designed to present and/or practice specific I CAN instructional focal points*? (Could an observer easily determine each focal point included in your lesson?)

☒ Yes ☐ No Comment:

8. Did you include a summary* as a part of this lesson? (In the form of review of the focal points, reinforcement for tasks well done and/or motivation for further work.)

☒ Yes ☐ No Comment:

9. Did any of the TLAs taught appear deficient? (In your judgment were the students profitably engaged in learning activity related to the selected focal points?)

☒ Deficient ☐ OK

List deficient TLAs here:

	MODULE	TPO	EO	TLA
1.	III	1	1	b
2.				
3.				
4.				
5.				

NOTE: (Cite the deficiency, the alternative(s) and rationale for the alternative(s) on a separate 8 1/2 by 11 sheet and append to this form if you are not scheduled to complete a Teacher Feedback form on these TPO-TLAs.)

I am filling out Feedback form on this.

TPO - TLA Identification Code:

(1.23a where: 1 = Module, 2 = TPO, 3 = EO and a = TLA focal point)

10. (To be completed if deficient TLAs are listed in Question 9.) Of those TLAs listed directly above what was the degree to which the instruction related to each focal point was implemented according to the specifications of the TLA? (Record above under "Implementation Dimension" using: 1 = as intended, 2 = high, 3 = moderate, 4 = low and 5 = not as intended.

Note: Judgments on implementation should be based on the intent of the TLA as suggested in the general directions column not on a word for word, item for item recital.

IMPLEMENTATION DIMENSION

	High	1	2	3	4	5	Low
1. (III, 1, 1. b)		[✓ 1]	2	3	4	5	
2.		1	2	3	4	5	
3.		1	2	3	4	5	
4.		1	2	3	4	5	
5.		1	2	3	4	5	

(circle one)

11. Did you use the concept of "double pay off*" planning in this lesson?

☒ Yes ☐ No Comment:

12. In your opinion, the students with few exceptions responded to this lesson with:

☒ High Interest ☐ Moderate Interest ☐ Indifference

☐ Resistance ☐ Unable to Rate

Identify specific TLA discrepancies from this general reaction to the lesson - include TLA I.D. and interest level.

	MODULE	TPO	EO	TLA	HIGH	MOD.	INDF.	RESIS.	UNABLE TO RATE
1.	II	4	1	a			✓		
2.									
3.									

13. List and comment on motivational and/or reinforcement techniques used which were particularly effective-ineffective: (briefly include why you thought it was good or bad).

I USED the record "I LOVE You Baby, BUT Your Feet Don't MAtch" AS background music For the running practice — the students seemed to really enjoy it.

14. Were there interruptions which prevented the lesson from being conducted as was intended?

☒ Yes ☐ No

If yes, describe their impact. (List the TLAs affected.)

	MODULE	TPO	EO	TLA
1.	III	1	1	C
2.				
3.				
4.				

Students from the neighboring class came in to listen to the music listed Above — I WAS unable to get to do what I planned to do on C due to this.

15. You taught this lesson using the student assessment data to individualize instruction approximately:

☒ High Degree (50% on task time)
☐ Moderate Degree (50-25% on task time)
☐ Low Degree (Less than 25% on task time)

NOTE: Use the back of this page to record any anecdotal information which will be helpful to your remembering this lesson or which you judge to be of special significance (positive and negative occurrences) to the developers of this lesson.

STUDENT DATA SHEET

1. Sample Form 32,34
2. User's Guide 31,33
3. Sample Completed Form . . 35

STUDENT DATA SHEET USER'S GUIDE

We are asking you to complete one Student Data Sheet for each student in your field test class. The information on this sheet will be valuable in describing our field test youngsters as well as providing us with some antecedent data which may be related to student performance.

General

Question
5. Disability Type(s): Please name or describe any disabilities or conditions possessed by this student. (i.e. Mongoloid, hydrocephalic, epileptic, etc)

6. Measured I.Q.: We realize that this information is not always available. In such a case, please rate this student as to his level of functioning with respect to other students in this age group. Rate as high, average or low functioning. Write your responce in the space beside I.Q.

7. Check the box which represents the number of months that a student has resided in your School District.

8. Absence: Write the number of days this student has been absent per month in the space beside the month. Fill in the months up to the time of completing the form.

9. Prescribed Drugs: Check the appropriate box - if the student is on some prescribed medication, please name it in the space provided.

Teacher Judgment

Question
10. Rate the attentiveness (in an instructional setting) of this student in relation to other students in this age group.

11. Rate the student in the normal functions that are considered to be self-help skills, i.e., bodily functions, eating, dressing, etc.

STUDENT DATA SHEET

Teacher: ______________________

School District: ______________

GENERAL

1. **Name:** ______________________________ 2. **Sex:** ________

3. **Birth Date:** ______________________

4. **Ethnic:** ☐ White ☐ Black ☐ Brown ☐ Other

5. **Disability Type(s):** ______________________________

6. **Measured IQ:** ______________________ **Date:** __________

7. **Months in this School District:**

☐ 0 ☐ 1-2 ☐ 3-5 ☐ 1 Year ☐ More than 1 Year

8. **Absence (Days/Month):**

Sept ____ **Oct** _____ **Nov** _____ **Dec** ____ **Jan** ____

Feb _____ **March** ____ **April** ____ **May** ____ **June** ____

9. **Prescribed Drugs:**

☐ Yes ☐ No **TYPE:** ______________________________

TEACHER JUDGMENT

10. **Attentiveness:**

☐ Very Good ☐ Good ☐ Fair ☐ Poor ☐ Very Poor

11. **Self Help Ability:**

☐ Very Good ☐ Good ☐ Fair ☐ Poor ☐ Very Poor

12. **Math Ability:**

☐ High (Upper 25% of Group) ☐ Moderate ☐ Low (Lower 25% of Group)

13. **Verbal Ability:**

☐ High (Upper 25% of Group) ☐ Moderate ☐ Low (Lower 25% of Group)

14. **Social Adjustment:**

☐ High (Upper 25% of Group) ☐ Moderate ☐ Low (Lower 25% of Group)

Teacher Judgment

Question

12.-13. Rate the math and verbal ability of this student in relation to other students in this age group. This rating may be subjective or based upon some scores which are available.

14. Rate the social adjustment of this student in relation to others in this age group. Consider such things as participation in group activity, manners, social courtesy, etc.

15. Rate this student's general willingness to participate in classroom activities.

16. Rate this student's general willingness to participate in gymnasium activities.

17. Check the box which, in your opinion, most nearly characterizes the way that this child feels about his own ability to participate in activities which involve movement ability.

18. Check the box which generally represents the health status of this student.

19. Check the box which most nearly characterizes the emotional stability of this student in relation to other students in this age group.

15. **Participation in Classroom Activities:**

☐ **Eager** ☐ **Reserved** ☐ **Resistant**

16. **Participation in Gymnasium Activities:**

☐ **Eager** ☐ **Reserved** ☐ **Resistant**

17. **Self Perception of Movement Ability:**

☐ **High** ☐ **Moderate** ☐ **Low**

18. **Health Status: (Vitality)**

☐ **Good** ☐ **Moderate** ☐ **Poor**

19. **Emotional Stability:**

☐ **High** ☐ **Moderate** ☐ **Low**

SAMPLE **STUDENT DATA SHEET** SAMPLE

Teacher: Tillie Teacher

School District: Anywhere, Mich.

GENERAL

1. **Name:** Missie Laneous 2. **Sex:** F

3. **Birth Date:** 8/1/63

4. **Ethnic:** ☒ White ☐ Black ☐ Brown ☐ Other

5. **Disability Type(s):** Mongoloid

6. **Measured IQ:** None - High functioning child **Date:** —

7. **Months in this School District:**

☐ 0 ☐ 1-2 ☐ 3-5 ☒ 1 Year ☐ More than 1 Year

8. **Absence (Days/Month):**

Sept 0 Oct 2 Nov 3 Dec 1 Jan 2

Feb 4 March 2 April 0 May ___ June ___

9. **Prescribed Drugs:**

☐ Yes ☒ No TYPE: -

TEACHER JUDGMENT

10. **Attentiveness:**

☐ Very Good ☒ Good ☐ Fair ☐ Poor ☐ Very Poor

11. **Self Help Ability:**

☒ Very Good ☐ Good ☐ Fair ☐ Poor ☐ Very Poor

12. **Math Ability:**

☒ High (Upper 25% of Group) ☐ Moderate ☐ Low (Lower 25% of Group)

13. **Verbal Ability:**

☒ High (Upper 25% of Group) ☐ Moderate ☐ Low (Lower 25% of Group)

14. **Social Adjustment:**

☒ High (Upper 25% of Group) ☐ Moderate ☐ Low (Lower 25% of Group)

15. Participation in Classroom Activities:

☒ Eager ☐ Reserved ☐ Resistant

16. Participation in Gymnasium Activities:

☒ Eager ☐ Reserved ☐ Resistant

17. Self Perception of Movement Ability:

☐ High ☒ Moderate ☐ Low

18. Health Status: (Vitality)

☐ Good ☒ Moderate ☐ Poor

19. Emotional Stability:

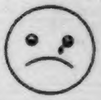
☒ High ☐ Moderate ☐ Low

I CAN REACTION POSTCARDS

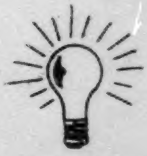
1. **Postcards . . . 37**
2. **User's Guide . . 38**

I CAN REACTION POSTCARDS USER'S GUIDE

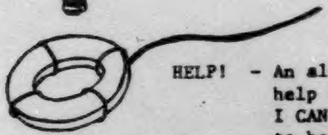
The Reaction Postcards are supplied to provide a means to capture ideas on problems of an "earth-shaking" nature which arise during the implementation of I CAN. Most typically a field test teacher would record comments on the appropriate card which relates to a TPO on which he/she is not submitting a Teacher Feedback Form. General reactions or problems are appropriately submitted to the I CAN staff on these cards also. The types of information in which we are interested can be characterized by the caption and picture on the card (see below). You are encouraged to keep these cards handy, jot down on-the-spot information or problems, and drop them in the mail immediately. If a response from us is indicated, we will reply by phone or in person as soon as possible.



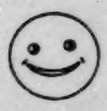
REACTION! - Negative reactions or recognized deficiencies in some phase of the I CAN program should be noted on this card.



IDEA! - Capture that "brainstorm" on paper while it is hot and get it to us.

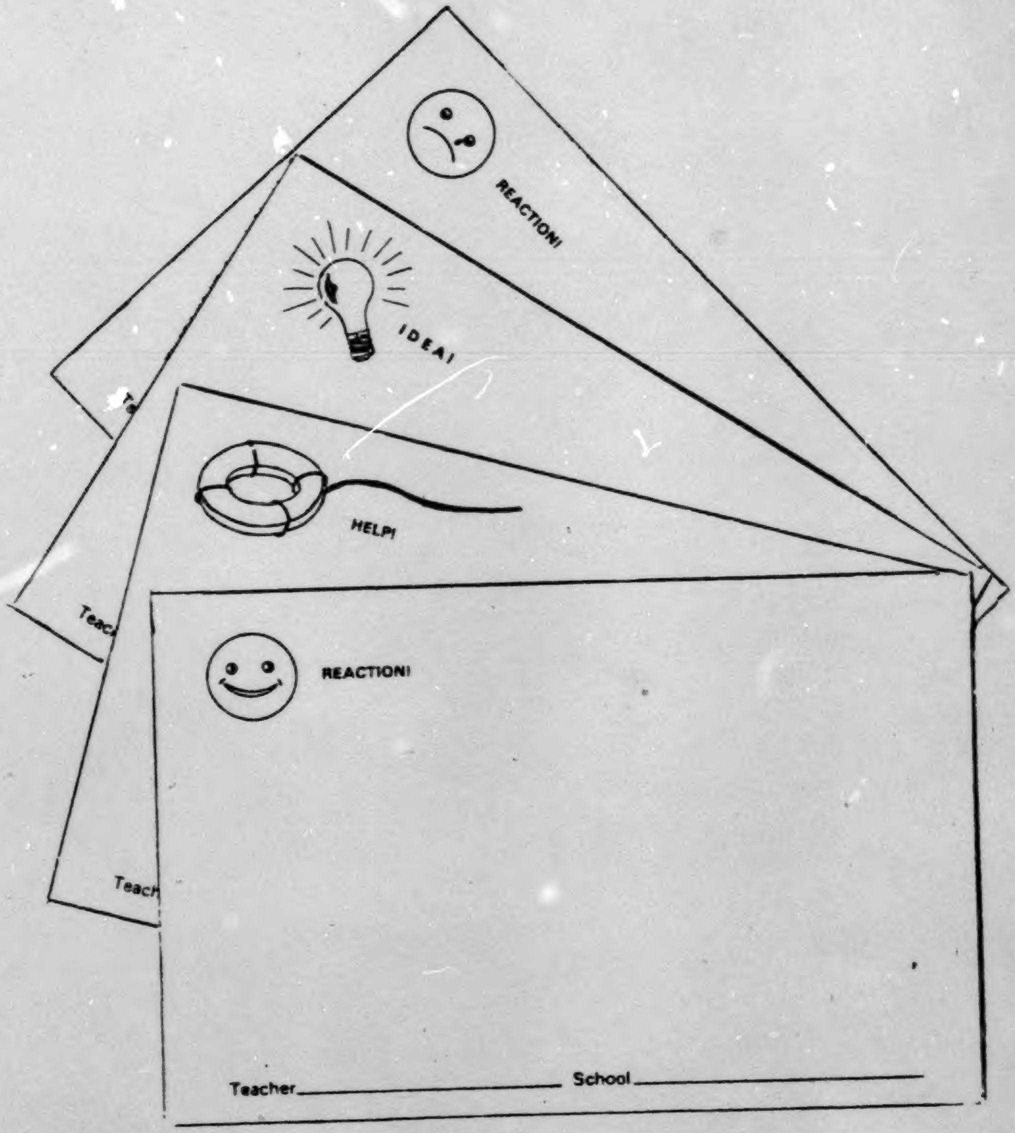


HELP! - An alternative means to the telephone of seeking help on that problem which is bothering you. An I CAN Staff Member will contact you and attempt to help.



REACTION! - A chance to make us feel good by pointing out something which, in your opinion, is particularly positive (helpful, time-saving, effective) about the I CAN program.

Be sure to record your name and school on all cards submitted!


REACTION!
IDEA!
HELP!
REACTION!
Teacher
Teacher________________ School________________

APPENDIX J

CHARACTERISTICS OF THE FIELD TEST TEACHERS

Physical Education Specialists	Sex	Age	# Years College Education	Date Last Class Taken	Highest Degree Obtained	Undergraduate Major	Graduate Major	# College Courses in Special Education	# College Courses in P.E. for Handicapped	Yrs. Experience Teaching P.E. to TMI	Years Teaching Experience
*A	F	No data available									
*B	M	No data available									
C	F	40+	4+	1973	B.S.	P.E.	Spec. Ed. M.R.	6	0	2	11
D	M	20-30	5	1973	B.S.	P.E.	P.E.	3	0	1	2
E	F	20-30	4+	1973	M.A.	P.E.	P.E. for Handicpd	6	3	2.5	8
*F	F	20-30	4+	1973	B.S.	P.E.	P.E. for Handicpd	8	4	.5	1.5
G	M	20-30	5+	1972	M.A.	P.E.	P.E. for Handicpd	13	5	3	3
H	M	30-40	6	1973	M.A.	P.E.	P.E.	1	0	0	7
*I	M	20-30	4	1973	B.S.	P.E.	-	1	1	0	C
J	F	40+	4+	1973	B.S.	P.E.	Spec. Ed. M.R.	12	0	5	25
*K	M	No data available									
L	M	20-30	4	1972	B.S.	P.E.	-	2	0	0	0
M	M	20-30	5	1973	M.A.	Poli Sci.	Spec. Ed. M.R.	12	2	2	2

*Deleted from field test

Classroom Teachers	Sex	Age	* Years College Education	Date Last Class Taken	Highest Degree Obtained	Undergraduate Major	Graduate Major	# College Courses in Special Education	* College Courses in P.E. for Handicapped	Yrs. Experience Teaching P.E. to TMI	Years Teaching Experience
A	F	20-30	4	1973	B.A.	Spec. Ed.MR	-	12	0	0	0
B	F	40+	5	1973	M.A.	Spec. Ed.MR	Spec. Ed M.R.	20+	0	0	2
C	M	20-30	6	1972	B.A.	Spec. Ed.Mr	-	20+	0	8	8
D	M	20-30	5	1973	B.S.	Spec. Ed.MR	-	12	0	1	1
E	F	20-30	4+	1973	B.S.	Spec. Ed.MR	Spec. Ed. E.D.	16	0	3	3
*F	F	No data available									
G	F	20-30	4	1972	B.A.	Spec. Ed.MR	-	12	0	1	2
H	F	20-30	4	1973	B.A.	Spec. Ed.MR	-	12	0	1	1
I	F	No data available									
J	F	No data available									
*K	F	No data available									
L	F	20-30	4	1973	B.S.	Spec. Ed.MR	-	12	0	1	1
M	M	No data available									

*Deleted from field test

APPENDIX K

DEVELOPMENT OF A "TEACHER QUALITY" RATING INSTRUMENT

Development of Teaching Quality Rating Instrument

The three categories and related items describing teacher quality were derived from the six consultants working with the I CAN field test teachers. Each was asked to develop statements which would be reflective of an "excellent" teacher of physical education for the trainable mentally impaired. These statements were then categorized into the three afore-mentioned areas. Consultant-educator review of the initial draft prompted the addition of several items. Subsequent discussion of the purpose and intent of each item provided clarifications and produced what was considered a working draft.

The working draft was then piloted to determine its usability. This process involved six I CAN consultants simultaneously rating one field test teacher. The teacher selected was well-known, and the rating was done subsequent to the observations, in keeping with the way in which the developed instrument was to be used.

When the ratings of the six consultants spanned more than two numbers on the 1-5 rating scale for an item, the item was considered deficient. In these instances each consultant was debriefed concerning their interpretation and the reason for their response. The information derived in the debriefing session was used to revise the item. This process was repeated until the item met the criterion of not spanning more than two numbers of the rating scale.

In instances where more than two sets of scores are available, Ebel (1951) suggests that it is desirable to establish an index of their agreement with each other. Using Ebel's concept of inter-rater reliability, the following inter-rater reliability coefficients were calculated for the three categories of the teaching ability rating instrument subsequent to its developmental revision:

Personal qualities related to work with children	.85
Communication with students	.92
Establishing classroom climate	.96

The index of agreement was calculated with the following formula: $IA=\frac{A}{B}$, where A= the value of the actual ratings and B= the value associated with perfect agreement. The index of agreement for each category of the rating instrument was determined by the following process:

1. Determining how far each rating was from the median rating for that item. For example, if the ratings given by the six consultants on one item were 1 2 3 4 5, the median would be 3.

Ratings of 2 and 4 would each be one away from the median; 1 and 5 are two away from the median. Since ratings are on a 1-5 scale, the maximum possible distance from the median would be 4.

2. Assigning a value to each rating based upon the degree to which it was reflective of the median.

   Following the example given above for a median of 3, each 3 rating would be weighted 1.0. If ratings were 1, 2, 3, or 4 ratings from the median their weights were .75, .50, .25, and 0, respectively.

3. Rating values were totaled and divided by 6 (the value that would occur for 6 raters with perfect agreement) to establish the index of agreement ratio.

   Continuing with example item, the ratings would be weighted and totaled as follows:

1	.50
2	.75
3	1.00
3	1.00
4	.75
5	.50
	4.50

$$IA = \frac{4.5}{6} = .75$$

4. Individual item ratios for the items in each instrument category were then totaled and divided by the number of items to obtain the three indices reported.

APPENDIX L

I CAN CONSULTANT MONITOR FORM

I CAN MONITORING: FORMS AND SCORING

Introduction

To identify the degree to which I CAN was implemented as intended, I CAN consultants and field test teachers monitored the treatment according to the items included on the Consultant Monitor Form and the Teachers Monitor Form. The Consultant Monitor Form, page 279, includes the response score values and item weights explained below. The Teachers Monitor Form, page 252, is supplemented with a users guide. The users guide appears on the page facing the monitor form.

Scoring

Scoring the monitor forms required multiplying a response score value times an item weight and dividing the resultant adjusted score by the maximum score possible to obtain a percentage. The values assigned to the various response options for each item are included below the response space they are associated with on the Consultants Monitor Form, pages 279-285. The importance of each item to the proper implementation of I CAN is included on the same form in the margin to the right of each item.

Higher confidence was placed in the scores of the consultant than in the self-reported scores of the teachers. For this reason, the average scores for each teacher, as reported by I CAN consultants, were assigned a weight which was double the weight of the teachers self-reported monitor data. Consultant and teacher self-reported scores were then combined to establish a composite percent score for each teacher.

Teacher Acceptance Criteria

Composite percent scores were categorized, with respect to implementing I CAN as intended, as high, moderate, or low on the following basis:

High = .90 and above
Moderate = .73 - .89
Low = .50 - .72

Teachers who scores "less than .50" were deleted from the study.

CONSULTANT MONITOR FORM

Monitor: ______________________

Teacher: ______________________

Date: ______________________

No. Students: ______________________

No. Teachers and Helpers Present ____

Modules	TPO	EO	TLA

1. Was this lesson taught as part of a predetermined long-range plan*?

☐ "All" (100-90%)	☐ Most (89-50%)	☐ Some (49-1%)	☐ None (0%)	
3[a]	2	1	0	3[b]

2. Was this lesson organized based upon previous student assessment*?

☐ "All" (100-90%)	☐ Most (89-50%)	☐ Some (49-1%)	☐ None (0%)	Comment:
3	2	1	0	5

3. In instances in which students did not have prerequisite skills* listed on the TLA(s) selected, were those prerequisite skills taught?

☐ Yes	☐ No	Comment:
3	0	3

---

*All terms to be interpreted as they are defined and explained in the I CAN Teacher's Manual.

[a] Response score value
[b] Item weight

4. Were game activities* (if used) related to the specified lesson focal points*?

☐ "All" (100-90%) ☐ Most (89-50%(☐ Some (49-1%) ☐ None (0%) ☐ Not Used

Comment:

3 2 1 0 3

5. Based upon your observation of this class and an indication by the teacher as to follow-up plans, was an appropriate decision (i.e., review prerequisite, recycle, continue) made concerning future instruction?

☐ Yes ☐ No Comment:

3 0 2

6. Could you detect an introductory phase* as a part of this lesson? (In the form of warm-up, review, prerequisite learnings or Health/ Fitness work.)

☐ Yes ☐ No Comment:

3 0 1

7. Could you clearly identify focal points of the lesson as they were being taught?

☐ Yes ☐ No Comment:

3 0 5

8. Could you detect a summary* as a part of this lesson? (In the form of review of the focal points, reinforcement for tasks well done and/or motivation for further work.)

☐ Yes ☐ No Comment:

3 0 1

9. Indicate the effective - ineffective strategies used by the instructor in this lesson. Identify those that appeared effective - ineffective.

TEACHING STRATEGIES

	USED	EFFECTIVE
Manipulation		
Response Chaining		
Environmental Manipulation		
Modeling		
Verbal		
Inquiry		
Others: ____________		
____________		

In the box labeled "EFFECTIVE" enter a ‡, +, -, = according to the representations below:

‡ = Excellent, + = Effective,

- = Ineffective, = = Totally Ineffective

10. Did any of the TLAs taught appear deficient? (In your judgment, were the students profitably engaged in learning activity related to the selected focal points?)

☐ Deficient ☐ OK

0 3

List deficient TLAs here:

	MODULE	TPO	EO	TLA
1.	____	____	____	____
2.	____	____	____	____
3.	____	____	____	____
4.	____	____	____	____
5.	____	____	____	____

NOTE: (Cite the deficiency, the alternative(s) and rationale for the alternative(s) on a separate 8½ by 11 sheet and append to this form.)

TPO - TLA Identification Code:

(1.23a where: 1 = Module, 2 = TPO, 3 = EO and a = TLA focal point)

11. (To be completed if deficient TLAs are listed in Question 10). Of those TLAs listed directly above what was the degree to which the instruction related to each focal point was implemented according to the specifications of the TLA? (Record above under "Implementation Dimension" using: 1 = as intended, 2 = high, 3 = moderate, 4 = low and 5 = not as intended. 4[a]

NOTE: Judgments on implementation should be based on the intent of the TLA as suggested in the general directions column not on a word for word, item for item recital.

IMPLEMENTATION DIMENSION

	High	1	2	3	4	5	Low
		3		2	1	0	
1.		1	2	3	4	5	
2.		1	2	3	4	5	
3.		1	2	3	4	5	
4.		1	2	3	4	5	
5.		1	2	3	4	5	

(circle one)

12. In your opinion, the instructor was well-prepared to teach this lesson?

Strongly Agree 1 2 3 4 5 Strongly Disagree

Comment:

13. Did the instructor use the concept of "double pay off" planning in this lesson?

☐ Yes ☐ No Comment:

---

[a] Item weight for items 10 and 11 one of which is scored.

14. In your opinion, the students, with few exceptions, responded to this lesson with:

☐ High Interest ☐ Moderate Interest ☐ Indifference

☐ Resistance ☐ Hard to Rate

Identify specific TLA discrepancies from this general reaction to the lesson - include TLA I.D. and interest level.

	MODULE	TPO	EO	TLA	HIGH	MOD.	INDF.	RESIS.	UNABLE TO RATE
1.									
2.									
3.									
4.									
5.									

15. List and comment on motivational and/or reinforcement techniques used by the instructor which were particularly effective–ineffective. (Briefly include why you thought it was good or bad.)

16. Were there interruptions which prevented the lesson from being conducted as was intended?

☐ Yes ☐ No

If yes, describe their impact. (List the TLAs affected)

Comment:

17. The teacher taught this lesson using the student assessment data to individualize instruction to a:

☐ High Degree (50% on task time) 3

☐ Moderate Degree (50–25% on task time) 2

☐ Low Degree (<25% on task time) 1

☐ Not Individualized 4

☐ N/A

NOTE: Use the back of this page to record any anecdotal information which will be helpful to your remembering this lesson or which you judge to be of special significance (positive or negative occurrences) to the developers of this lesson.

APPENDIX M

I CAN FORMATIVE EVALUATION DATA TABLES

TABLE 6. Teacher Judgments of TPO Importance for the Module: Body Management.

		TPO	N	Adj. N[1]	Percent of Adjusted N[1]				
					Very Important	Important	OK	Unimportant	Worthless
Awareness	Body Awareness	1. Body Actions	7	26	12	88	0	0	0
		2. Body Parts	6	22	100	0	0	0	0
		3. Body Areas	3	11	55	45	0	0	0
	Awareness of Environment	4. Shapes-Sizes	2	5	0	100	0	0	0
		5. Directions	2	6	17	83	0	0	0
		6. Space[2]	0	0	0	0	0	0	0
Body Postures		7. Static Postures	3	8	100	0	0	0	0
		8. Dynamic Alignment	3	10	50	50	0	0	0
		9. Push-Pull Alignment[2]	0	0	0	0	0	0	0
		10. Carrying Alignment[2]	0	0	0	0	0	0	0
Controlling the Body		11. Body Rotations	2	10	0	100	0	0	0
		12. Upright Balance[2]	0	0	0	0	0	0	0
		13. Inverted Balance	1	3	0	100	0	0	0
		14. Dynamic Balance	1	5	0	100	0	0	0
		15. Climbing[2]	0	0	0	0	0	0	0

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 7. Teacher Judgments of TPO Importance for the Module: Fundamental Skills.

	TPO	N	Adj. N[1]	Percent of Adjusted N[1]				
				Very Important	Important	OK	Unimportant	Worthless
Locomotor Skills	1. Run	6	20	60	40	0	0	0
	2. Leap	0	0	0	0	0	0	0
	3. Horizontal Jump	4	20	25	75	0	0	0
	4. Vertical Jump	3	13	61	39	0	0	0
	5. Hop	5	20	75	0	25	0	0
	6. Gallop	3	8	37	0	63	0	0
	7. Slide[2]	0	0	0	0	0	0	0
	8. Skip	3	13	38	62	0	0	0
Object Control	9. Underhand Roll	4	10	90	10	0	0	0
	10. Underhand Throw	6	21	52	48	0	0	0
	11. Overhand Throw	4	14	64	36	0	0	0
	12. Kick	6	17	35	65	0	0	0
	13. Continuous Bounce	3	10	100	0	0	0	0
	14. Catch	7	29	66	34	0	0	0
	15. Underhand Strike	1	5	100	0	0	0	0
	16. Overhead Strike[2]	0	0	0	0	0	0	0
	17. Forehand Strike[2]	0	0	0	0	0	0	0
	18. Backhand Strike[2]	0	0	0	0	0	0	0
	19. Sidearm Strike	1	3	0	100	0	0	0
Rhythmic Skills	20. Even Beat[2]	0	0	0	0	0	0	0
	21. Uneven Beat[2]	0	0	0	0	0	0	0
	22. Accent-Phrasing[2]	0	0	0	0	0	0	0
	23. Imitation	1	5	0	100	0	0	0
	24. Communication[2]	0	0	0	0	0	0	0

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 8. Teacher Judgments of TPO Clarity for the Module: Body Management.

	TPO	N	Adj. N[1]	Percent of Adj. N[1]		EO	N	Adj. N[1]	Percent of Adj. N[1]	
				Yes	No				Yes	No
Body Awareness	1. Body Actions	7	26	100	0	1	7	26	62	38
						2	5	23	35	62
	2. Body Parts	6	22	77	23	1	6	22	100	0
						2	5	17	100	0
	3. Body Areas	3	11	100	0	1	2	6	100	0
						2	2	6	100	0
Awareness of Environment	4. Shapes-Sizes	2	5	100	0	1	1	5	100	0
	5. Directions	2	6	100	0	1	2	6	100	0
						2	2	6	100	0
	6. Space[2]	0	0	0	0		0	0	0	0
Body Postures	7. Static Postures	4	8	100	0	1	4	8	100	0
						2	1	5	100	0
						3	1	5	100	0
	8. Dynamic Alignment	3	10	100	0	1	3	10	100	0
						2	1	5	100	0
	9. Push-Pull[2]	0	0	0	0		0	0	0	0
	10. Carrying[2]	0	0	0	0		0	0	0	0

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[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 8. Teacher Judgments of TPO Clarity for the Module: Body Management (continued).

	TPO	N	Adj. N[1]	Percent of Adj. N[1]		EO	N	Adj. N[1]	Percent of Adj. N[1]	
				Yes	No				Yes	No
Controlling the Body	11. Body Rotations	2	10	100	0	1	2	10	100	0
						2	2	10	100	0
						3	1	5	100	0
	12. Upright Balance[2]	0	0	0	0		0	0	0	0
	13. Inverted Balance	1	3	100	0	1	1	3	100	0
	14. Dynamic Balance	1	5	100	0	1	1	5	100	0
						2	1	5	100	0
						3	1	5	100	0
						4	1	5	100	0
	15. Climbing[2]	0	0	0	0		0	0	0	0

TABLE 9. Teacher Judgments of TPO Clarity for the Module: Fundamental Skills.

	TPO	N	Adj. N[1]	Percent of Adj. N[1]		EO	N	Adj. N[1]	Percent of Adj. N[1]	
				Yes	No				Yes	No
Locomotor Skills	1. Run	6	20	100	0	1	5	15	100	0
						2	4	10	100	0
						3	2	4	100	0
	2. Leap[2]	0	0	0	0		0	0	0	0
	3. Horizontal Jump	4	20	100	0	1	3	15	67	33
	4. Vertical Jump	3	13	100	0	1	3	13	100	0
						2	2	8	100	0
	5. Hop	5	20	75	25	1	3	15	100	0
						2	2	10	100	0
	6. Gallop	3	8	100	0	1	3	8	100	0
	7. Slide[2]	0	0	0	0		0	0	0	0
	8. Skip	3	13	100	0	1	3	13	100	0
						2	2	8	100	0
						3	2	8	100	0
Object Control Skills	9. Underhand Roll	4	10	100	0	1	4	10	100	0
						2	1	1	100	0
	10. Underhand Throw	6	21	100	0	1	6	21	100	0
		6	21	100	0	2	1	5	100	0
	11. Overhand Throw	4	14	100	0	1	4	14	100	0
						2	1	3	100	0

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 9. Teacher Judgments of TPO Clarity for the Module: Fundamental Skills (continued).

	TPO	N	Adj. N[1]	Percent of Adj. N[1]		EO	N	Adj. N[1]	Percent of Adj. N[1]	
				Yes	No				Yes	No
Object Control Skills	12. Kick[2]	6	17	100	0	1	6	17	100	0
						2	3	11	100	0
	13. Continuous Bounce	3	10	100	0	1	3	10	100	0
						2	1	5	100	0
	14. Catch	5	19	100	0	1	5	19	100	0
						2	2	8	100	0
	15. Underhand Strike	1	5	100	0	1	1	5	100	0
						2	1	5	100	0
	16. Overhead Strike[2]	0	0	0	0		0	0	0	0
	17. Forehand Strike[2]	0	0	0	0		0	0	0	0
	18. Backhand Strike[2]	0	0	0	0		0	0	0	0
	19. Sidearm Strike	1	3	100	0	1	1	3	100	0
						2	1	3	100	0
Rhythmic Skills	20. Even Beat[2]	0	0	0	0		0	0	0	0
	21. Uneven Beat[2]	0	0	0	0		0	0	0	0
	22. Accent & Phrasing[2]	0	0	0	0		0	0	0	0
	23. Imitation	1	5	100	0	1	1	5	100	0
	24. Communication[2]	0	0	0	0		0	0	0	0

TABLE 10. Teacher Judgments of TPO Congruence Within the Module: Body Management.

TPO	EO	Focal Point	N	Adj. N[1]	Percent of Adjusted N[1]					
					High	Moderate	Low	Inaccurate	Add	Delete
1	Body Actions									
	1	a	7	26	19	31	31	19		
		b	6	23	22	78				
		c	7	26	88	12				
	2	a	6	26	31	69				
		b	5	23	22	57	22			
		c	5	23	22	78				
		d	3	15	33	33	33			
2	Body Parts									
	1	a	5	19	47	53				
		b	5	19	32	68				
		c	5	19	47	53				
		d	5	19	47	53				
	2	a	3	9	44	56				
		b	3	9	67	33				
		c	3	9	11	89				
3	Body Areas									
	1	a	3	11	100	0				
		b	3	11	45	55				
		c	3	11	45	55				
		d	3	11	100	0				
	2	a	3	11	65	45				
		b	3	11	100	0				
4.	Shapes and Sizes									
	1	a	2	5	0	100				
		b	2	5	100	0				
		c	2	5	100	0				
		d	2	5	100	0				
		e	2	5	100	0				
	2	a	1	5	100	0				

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 10. Teacher Judgments of TPO Congruence Within the Module: Body Management (continued).

TPO	EO	Focal Point	N	Adj. N[1]	Percent of Adjusted N[1]					
					High	Moderate	Low	Inaccurate	Add	Delete
5	Direction									
	1	a	2	6	83	17				
		b	2	6	83	17				
		c	2	6	83	17				
		d	2	6	83	17				
	2	a	2	6	100	0				
		b	2	6	83	17				
		c	2	6	100	0				
		d	2	6	100	0				
6	Space[2]		0	0	0	0	0	0	0	0
7	Static Posture									
	1	a	4	8	100					
		b	4	8	100					
		c	4	8	100					
		d	3	5	100					
		e	4	8	100					
8	Dynamic Posture									
	1	a	3	10	100	0				
		b	3	10	50	50				
		c	2	5	100	0				
9	Pull-Push-Turn[2]		0	0	0	0	0	0	0	0
10	Carrying[2]		0	0	0	0	0	0	0	0
11	Rotation									
	1	a	2	10	100					
		b	2	10	100					
	2	a	2	10	50	50				
		b	2	10	100	0				
		c	2	10	0	50				
		d	2	10	50	50				

TABLE 10. Teacher Judgments of TPO Congruence Within the Module: Body Management (continued).

TPO	EO	Focal Point	N	Adj. N^1	Percent of Adjusted N^1					
					High	Moderate	Low	Inaccurate	Add	Delete
11	Rotation (cont)									
	3	a	1	5	100	0				
		b	1	5	0	100				
		c	1	5	100	0				
		d	1	5	100	0				
		e	1	5	100	0				
12	Upright Balance[2]									
			0	0	0	0	0	0	0	0
13	Inverted Balance									
	1	a	1	3	100					
		b	1	3	100					
		c	1	3	100					
		d	1	3	100					
		e	1	3	100					
		f	1	3	100					
14	Dynamic Balance									
	1	a	1	5	100					
		b	1	5	100					
		c	1	5	0	100				
15	Climbing[2]		0	0	0	0	0	0	0	0

TABLE 11. Teacher Judgments of TPO Congruence Within the Module: Fundamental Motor Skills.

TPO	EO	Focal Point	N	Adj. N[1]	Percent of Adjusted N[1]					
					High	Moderate	Low	Inaccurate	Add	Delete
1	Run									
	1	a	6	20	60	15	0	0	25	
		b	7	25	24	56	0	0	20	
		c	5	15	67	0	33	0	0	
		d	6	20	50	0	0	25	25	
	2	a	3	6	50	50				
		b	3	6	100	0				
	3	a	2	4	25	75				
		b	2	4	25	75				
		c	2	4	100	0				
		d	2	4	100	0				
2	Leap[2]		0	0	0	0	0	0	0	0
3	Horizontal Jump									
	1	a	3	15	33	67	0			
		b	3	15	33	67	0			
		c	3	15	33	67	0			
		d	3	15	0	100	0			
		e	3	15	0	100	0			
		f	3	15	0	67	33			
4	Vertical Jump									
	1	a	3	13	76	23				
		b	3	13	76	23				
		c	3	13	100	0				
	2	a	2	8	62	37				
		b	2	8	62	37				

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 11. Teacher Judgments of TOP Congruence Within the Module: Fundamental Motor Skills (continued).

TPO	EO	Focal Point	N	Adj. N[1]	Percent of Adjusted N[1]					
					High	Moderate	Low	Inaccurate	Add	Delete
5	Hop									
	1	a	4	20	100	0				
		b	4	20	50	50				
		c	5	20	75	25				
	2	a	3	10	0	100				
		b	2	10	50	50				
6	Gallop									
	1	a	3	8	37	62				
		b	3	8	37	62				
		c	3	8	0	100				
7	Slide[2]		0	0	0	0	0	0	0	0
8	Skip									
	1	a	3	13	62	38				
		b	3	13	0	100				
		c	3	13	23	88				
	2	a	2	8	37	63				
		b	0	0	0	0				
	3	a	2	8	37	63				
		b	2	8	63	37				
9	Underhand Roll									
	1	a	4	10	90	10				
		b	4	10	100	0				
		c	3	7	100	0				
		d	3	7	14	86				
	2	a	1	1	100	0				
		b	1	1	0	100				

TABLE 11. Teacher Judgments of TOP Congruence Within the Module: Fundamental Motor Skills (continued).

TPO	EO	Focal Point	N	Adj. N	Percent of Adjusted N					
					High	Moderate	Low	Inaccurate	Add	Delete
10	Underhand Throw									
	1	a	6	21	71	29	0			
		b	6	21	71	24	5			
		c	6	21	95	0	5			
		d	6	21	24	76	0			
		e	1	5	100	0	0			
	2	a	1	5	0	100				
		b	1	5	0	100				
11	Overhand Throw									
	1	a	4	14	93	0	7			
		b	4	14	93	7	0			
		c	4	14	57	36	7			
		d	3	11	45	45	9			
		e	3	11	91	9				
	2	a	1	3	0	100				
		b	1	3	100	0				
		c	1	3	0	100				
12	Kick									
	1	a	6	17	100	0	0			
		b	6	17	100	0	0			
		c	6	17	94	6	0			
		d	6	17	94	6	0			
		e	5	12	50	41	8			
		f	4	7	14	71	14			
		g	5	12	92	8	0			
	2	a	1	1	100	0				
		b	1	1	100	0				
		c	1	1	0	100				

TABLE 11. Teacher Judgments of TPO Congruence Within the Module: Fundamental Motor Skills (continued).

TPO	EO	Focal Point	N	Adj. N^1	Percent of Adjusted N^1					
					High	Moderate	Low	Inaccurate	Add	Delete
13	Continuous Bounce									
	1	a	3	10	100	0				
		b	3	10	100	0				
		c	3	10	100	0				
		d	2	5	0	100				
		e	2	5	100	0				
		f	2	5	100	0				
	2	a	1	5	100					
			1	5	100					
		c	1	5	100					
14	Catch									
	1	a	7	29	52	48		0		17
		b	7	29	66	34		0		0
		c	7	29	52	48		0		0
		d	5	19	26		68	6		0
	2	a	4	19	68	0		32		0
		b	3	13	38	23		0		38
15	Underhand Strike									
	1	a	1	5	100					
		b	1	5	100					
		c	1	5	100					
		d	1	5	100					
		e	1	5	100					
16	Overhead Strike^2									
			0	0	0	0	0	0	0	0
17	Forehand Strike^2									
			0	0	0	0	0	0	0	0
18	Backhand Strike^2									
			0	0	0	0	0	0	0	0

TABLE 11. Teacher Judgments of TPO Congruence Within the Module: Fundamental Motor Skills (continued).

TPO	EO	Focal Point	N	Adj. N	Percent of Adjusted N					
					High	Moderate	Low	Inaccurate	Add	Delete
19	Sidearm Strike									
	1	a	1	3	100	0				
		b	1	3	100	0				
		c	1	3	100	0				
		d	1	3	100	0				
		e	1	3	0	100				
		f	1	3	100	0				
	2	a	1	3	0	100				
20	Even Beat[2]									
			0	0	0	0	0	0	0	0
21	Uneven Beat[2]									
			0	0	0	0	0	0	0	0
22	Accent-Phrasing[2]									
			0	0	0	0	0	0	0	0
23	Imitation									
	1	a	1	5	100					
		b	1	5	100					
24	Communication[2]									
			0	0	0	0	0	0	0	0

TABLE 13. Indications of Student Improvements Not Reportable on the Student Performance Score Sheet.

TPO		N	Adj. N[1]	Percent of Adjusted N[1]	
				Yes	No
1.	Run	5	15	80	20
2.	Leap	0	0	0	0
3.	Horizontal Jump	3	15	67	33
4.	Vertical Jump	3	13	76	23
5.	Hop	5	20	75	25
6.	Gallop	2	3		100
7.	Slide[2]	0	0	0	0
8.	Skip	3	13	38	62
9.	Underhand Roll	4	10	60	40
10.	Underhand Throw	6	21	52	48
11.	Overhand Throw	4	14	29	71
12.	Kick	6	17	71	29
13.	Continuous Bounce	3	10	50	50
14.	Catch	6	24	63	37
15.	Underhand Strike	1	5		100
16.	Overhead Strike[2]	0	0	0	0
17.	Forehand Strike[2]	0	0	0	0
18.	Backhand Strike[2]	0	0	0	0
19.	Sidearm Strike	1	3		100
20.	Even Beat[2]	0	0	0	0
21.	Uneven Beat[2]	0	0	0	0
22.	Accent & Phrasing[2]	0	0	0	0
23.	Imitation	1	5		100
24.	Communication[2]	0	0	0	0

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 19. Teacher Judgments of the Helpfulness of the Teaching-Learning Activities for the Module: Body Management.

	TPO	EO	Focal Point	N	Adj. N[1]	Percent of Adjusted N[1]			
						Very Helpful	Helpful	Not Very Helpful	Worthless: Omit
Body Awareness	1. Body Actions								
		1	a	6	26		81		19
			b	5	23		78	22	
			c	5	23	35	65		
		2	a	4	18		100		
			b	3	15		67	33	
			c	3	15		100		
			d	3	15		33	67	
	2. Body Parts								
		1	a	6	22	36	41	23	
			b	6	22	36	64		
			c	6	22	36	64		
			d	6	22	36	64		
		2	a	4	12	25	33	42	
			b	4	12		100		
			c	4	12	25	33	42	
	3. Body Areas								
		1	a	3	11		100		
			b	3	11		55	45	
			c	3	11		100		
			d	3	11		100		
		2	a	3	11		100		
			b	3	11		100		
Awareness of Environment	4. Shapes and Sizes								
		1	a	1	5	100			
	5. Direction								
		1	a	2	6		100		
			b	2	6		100		
			c	2	6		100		
			d	2	6		100		

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 19. Teacher Judgments of the Helpfulness of the Teaching-Learning Activities for the Module: Body Management (continued).

	TPO	EO	Focal Point	N	Adj. N^1	Percent of Adjusted N^1			
						Very Helpful	Helpful	Not Very Helpful	Worthless: Omit
Awareness of Environment	5. Direction (cont)								
		2	a	2	6		100		
			b	2	6		100		
			c	2	6		100		
			d	2	6		100		
	6. Space[2]			0	0	0	0	0	0
Body Postures	7. Static Posture								
		1	a	3	8	100			
			b	3	8	100			
			c	3	8	100			
			d	2	5	100			
			e	3	8	100			
	8. Dynamic Posture								
		1	a	3	10		100		
			b	3	10		100		
			c	2	5		100		
	9. Pull-Push-Turn[2]			0	0	0	0	0	0
	10. Carrying[2]			0	0	0	0	0	0
Controlling the Body	11. Rotation								
		1	a	1	5	100			
			b	1	5	100			
		2	a	2	10	50	50		
			b	2	10	50	50		
			c	2	10	50	50		
			d	1	5	100			
	12. Upright Balance[2]			0	0	0	0	0	0

TABLE 19. Teacher Judgments of the Helpfulness of the Teaching Learning Activities for the Module: Body Management (continued).

	TPO	EO	Focal Point	N	Adj. N[1]	Percent of Adjusted N[1]			
						Very Helpful	Helpful	Not Very Helpful	Worthless: Omit
Controlling the Body	13. Inverted Balance								
		1	a	1	3		100		
			b	1	3	100			
			c	1	3		100		
			d	1	3		100		
			e	1	3		100		
			f	1	3		100		
	14. Dynamic Balance								
		1	a	1	5	100			
			b	1	5	100			
			c	1	5		100		
	15. Climbing[2]			0	0	0	0	0	0

TABLE 20. Teacher Judgments of the Helpfulness of the Teaching-Learning Activities for the Module: Fundamental Skills.

	TPO	EO	Focal Point	N	Adj. N[1]	Percent of Adjusted N[1]			
						Very Helpful	Helpful	Not Very Helpful	Worthless: Omit
Locomotor Skills	1. Run								
		1	a	6	20	30	70		
			b	6	20	25	75		
			c	5	15	67	33		
			d			33	33	33	
		2	[illegible]	2	4	75	25		
			[illegible]	2	4		100		
		3	a	2	4				
			b	2	4		25	75	
			c	2	4		100		
	2. Leap[2]			0	0	0	0	0	0
	3. Horizontal Jump								
		1	a	4	20	25	75		
			b	4	20	50	50		
			c	4	20	25	75		
			d	4	20	25	75		
			e	4	20	25	75		
			f	4	20	50	50		
		2	a						
			b						
			c						
	4. Vertical Jump								
		1	a	3	13		100		
			b	3	13	23	76		
			c	3	13		100		
		2	a	2	8		37	62	
			b	2	8		37	62	

[1] See note #1, page 317 at the end of this appendix

[2] Not selected by field test teachers.

TABLE 20. Teacher Judgments of the Helpfulness of the Teaching-Learning Activities for the Module: Fundamental Skills (continued).

	TPO	EO	Focal Point	N	Adj. N¹	Percent of Adjusted N¹			
						Very Helpful	Helpful	Not Very Helpful	Worthless: Omit
Locomotor Skills	5. Hop								
		1	a	4	20	50	25	25	
			b	4	20	50	50		
			c	5	20	25	75		
		2	a	2	10		100		
			b	2	10	50	50		
	6. Gallop								
		1	a	3	8	37	62		
			b	3	8	37	62		
			c	3	8		100		
			d	3	8	37	62		
	7. Slide²			0	0	0	0	0	0
	8. Skip								
		1	a	3	13		100		
			b	4	13		100		
			c	3	13		62	38	
		2	a	2	8	37	63		
			b	1	3		100		
		3	a	2	8		100		
			b	1	3		100		
Object Control Skills	9. Underhand Roll								
		1	a	4	10	90	10		
			b	4	10	80	20		
			c	3	7	71	29		
			d	3	7	71	14	14	
		2	a	1	1		100		
			b	1	1		100		
	10. Underhand Throw								
		1	a	6	21	71	29		
			b	6	21	24	71	5	
			c	6	21	47	47	5	
			d	6	21	48	52		
			e	1	5		100		
		2	a	1	5		100		
			b	1	5		100		

TABLE 20. Teacher Judgments of the Helpfulness of the Teaching-Learning Activities for the Module: Fundamental Skills (continued).

	TPO	EO	Focal Point	N	Adj. N^1	Percent of Adjusted N^1			
						Very Helpful	Helpful	Not Very Helpful	Worthless: Omit
Object Control Skills	11. Overhand Throw								
		1	a	4	14	35	64		
			b	4	12	42	58		
			c	4	12	42	58		
			d	3	7		100		
			e	3	7		100		
		2	a	1	3			100	
			b	1	3		100		
			c	1	3		100		
	12. Kick								
		1	a	6	17	65	35		
			b	6	17	59	35	6	
			c	6	17	29	65	6	
			d	6	17	59	41		
			e	6	17	29	71		
			f	5	12	42	58		
			g	5	12	42	50		8
		2	a	1	1		100		
			b	1	1		100		
	13. Continuous Bounce								
		1	a	3	10		100		
			b	3	10	50	50		
			c	3	10	50		50	
			d	3	10		100		
			e	3	10		100		
			f	3	10	50	50		
		2	a	1	5		100		
			b	1	5		100		
			c	1	5		100		
			d	1	5			100	
	14. Catch								
		1	a	7	29	20	44	34	
			b	7	29	20	80		
			c	7	29	34	66		
			d	6	24		96	4	
		2	a	3	13	23	38	38	
			b	3	13	23	38		38

TABLE 20. Teacher Judgments of the Helpfulness of the Teaching-Learning Activities for the Module: Fundamental Skills (continued).

	TPO	EO	Focal Point	N	Adj. N[1]	Percent of Adjusted N[1]			
						Very Helpful	Helpful	Not Very Helpful	Worthless: Omit
Object Control Skills	15. Underhand Strike								
		1	a	1	5		100		
			b						
			c	1	5		100		
			d	1	5	100			
			e	1	5		100		
	16. Overhead Strike[2]			0	0	0	0	0	0
	17. Forehand Strike[2]			0	0	0	0	0	0
	18. Backhand Strike[2]			0	0	0	0	0	0
	19. Sidearm Strike								
		1	a	1	3		100		
			b	1	3		100		
			c	1	3	100			
			d	1	3	100			
			e	1	3	100			
			f	1	3		100		
		2	a	1	3		100		
Rhythmic Skills	20. Even Beat[2]			0	0	0	0	0	0
	21. Uneven Beat[2]			0	0	0	0	0	0
	22. Accent & Phrasing[2]			0	0	0	0	0	0
	23. Imitation								
		1	a	1	5		100		
			b	1	5		100		
	24. Communication[2]			0	0	0	0	0	0

TABLE 21. Teacher Judgments of Game Activity Helpfulness for the Module: Body Management.

TPO	Game*	N	Adj. N[1]	Percent of Adjusted N[1]					
				Very Helpful	Helpful	Not Very Helpful	Worth-less Omit	Did Not Use	Used Alter-native
Body Awareness	1. Body Actions								
	All	1	3					100	
	2	1	5		100				
	3	1	5		100				
	4	4	18		72		28		
	5	1	5		100				
	9	3	15		100				
	15	1	5			100			
	16	1	5			100			
	17	1	5			100			
	18	1	5		100				
	19	1	5			100			
	20	1	5		100				
	2. Body Parts								
	All	1	3						
	2	1	5	100					
	3	3	11		55	45			
	4	2	6	83	17				
	6	2	6	83	17				
	8	1	5		100				
	9	5	19	42	58				
	11	1	3		100				
	14	1	3	100					
	18	1	3			100			
	3. Body Areas								
	2	3	11	100					
	4	1	1	100					
	6	1	1	100					
	9	1	1	100					
	12	1	1		100				
	13	1	1		100				
	16	1	1	100					

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 21. Teacher Judgments of Game Activity Helpfulness for the Module: Body Management (continued).

	TPO Game	N	Adj. N^1	Percent of Adjusted N^1					
				Very Helpful	Helpful	Not Very Helpful	Worthless Omit	Did Not Use	Used Alternative
Awareness of Environment	4. Shapes and Sizes								
	11	1	5		100				
	5. Direction								
	All	1	5					100	
	23	1	1	100					
	27	1	1	100					
	40	1	1	100					
	41	1	1	100					
	6. Space^2	0	0	0	0	0	0	0	0
Body Postures	7. Static Posture^2								
		0	0	0	0	0	0	0	0
	8. Dynamic Posture								
	2	1	5	100					
	9. Pull-Push-Turn								
		0	0	0	0	0	0	0	0
	10. Carrying^2	0	0	0	0	0	0	0	0
Controlling the Body	11. Rotation								
	4	1	5					100	
	12. Upright Balance^2								
		0	0	0	0	0	0	0	0
	13. Inverted Balance^2								
		0	0	0	0	0	0	0	0
	14. Dynamic Balance								
	All	1	5					100	
	15. Climbing^2	0	0	0	0	0	0	0	0

TABLE 22. Teacher Judgments of Game Activity Helpfulness for the Module: Fundamental Skills.

TPO	Game	N	Adj. N[1]	Percent of Adjusted N[1]					
				Very Helpful	Helpful	Not Very Helpful	Worthless Omit	Did Not Use	Used Alternative
Locomotor Skills	1. Run								
	1	1	5	100					
	2	3	7	86	14				
	4	1	1	100					
	5	1	3	100					
	6	3	5	60	40				
	9	1	1	100					
	29	1	1		100				
	30	1	1		100				
	33	1	1		100				
	2. Leap[2]	0	0	0	0	0	0	0	0
	3. Horizontal Jump								
	1	1	5	100					
	8	2	10		100				
	10	1	5		100				
	11	1	5		100				
	12	1	5		100				
	30	1	5		100				
	4. Vertical Jump								
	18	1	5		100				
	20	1	5		100				
	34	1	5		100				
	5. Hop								
	1	1	5				100		
	2	2	10		50		50		
	3	2	10		50		50		
	5	1	5		100				
	7	1	5				100		
	9	1	5				100		
	All	3	10					50	50

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 22. Teacher Judgments of Game Activity Helpfulness for the Module: Fundamental Skills (continued).

	TPO Game	N	Adj. N[1]	Percent of Adjusted N[1]					
				Very Helpful	Helpful	Not Very Helpful	Worth-less Omit	Did Not Use	Used Alter-native
Locomotor Skills	6. Gallop								
	All	1	3					100	
	15	1	5		100				
	21	1	5	100					
	7. Slide[2]	0	0	0	0	0	0	0	0
	8. Skip								
		1	5					100	
	3	2	8		37	63			
	5	1	3		100				
	21	1	3	100					
Object Control Skills	9. Underhand Roll								
	37	2	2	50	50				
	39	2	2		50	50			
	41	2	6	17	83				
	10. Underhand Throw								
	37	3	10		100				
	45	1	0						
	47	1	5		100				
	48	2	6		83	17			
	55	1	5		100				
	11. Overhand Throw								
	39	1	5		100				
	12. Kick								
	All	2	5						100
	39	1	5		100				
	50	1	5	100					
	52	2	6	100					
	54	2	2		50	50			
	13. Continuous Bounce								
	All	2	10					100	
	57	1	0						

TABLE 22. Teacher Judgments of Game Activity Helpfulness for the Module: Fundamental Skills (continued).

	TPO Game	N	Adj. N[1]	Percent of Adjusted N[1]					
				Very Helpful	Helpful	Not Very Helpful	Worthless Omit	Did Not Use	Used Alternative
Object Control Skills	14. Catch								
	All	4	16						100
	48	1	3	100					
	51	1	3	100					
	39	1	5		100				
	50	1	5		100				
	15. Underhand Strike	1	5		100				
	16. Overhead Strike[2]	0	0	0	0	0	0	0	0
	17. Forehand Strike[2]	0	0	0	0	0	0	0	0
	18. Backhand Strike[2]	0	0	0	0	0	0	0	0
	19. Sidearm Strike								
	45	1	3		100				
	46	1	3		100				
Rhythmic Skills	20. Even Beat[2]	0	0	0	0	0	0	0	0
	21. Uneven Beat[2]	0	0	0	0	0	0	0	0
	22. Accent & Phrasing[2]	0	0	0	0	0	0	0	0
	23. Imitation	1	5					100	
	24. Communication[2]	0	0	0	0	0	0	0	0

TABLE 23. Indications of Need for Equipment or Media for the Module: Body Management.

TPO		N	Adj. N[1]	Percent of Adjusted N[1]		
				Yes	No	Possibly
1.	Body Actions	5	20	75	25	
2.	Body Parts	6	22	100		
3.	Body Areas	3	11	100		
4.	Shapes-Sizes	1	5		100	
5.	Directions	2	6	17	83	
6.	Space[2]	0	0	0	0	0
7.	Static Posture	4	8	100		
8.	Dynamic Alignment	3	10	50	50	
9.	Push-Pull Alignment[2]	0	0	0	0	0
10.	Carrying Alignment[2]	0	0	0	0	0
11.	Body Rotations	2	10	50	50	
12.	Upright Balance[2]	0	0	0	0	0
13.	Inverted Balance	1	3		100	
14.	Dynamic Balance	1	5		100	
15.	Climbing[2]	0	0	0	0	0

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 24. Indications of Need for Equipment or Media for the Module: Fundamental Skills.

TPO	N	Adj. N[1]	Percent of Adjusted N[1]		
			Yes	No	Possibly
1. Run	6	20	100		
2. Leap[2]	0	0	0	0	0
3. Horizontal Jump	4	20	100		
4. Vertical Jump	2	8	63	37	
5. Hop	5	20	50	25	25
6. Gallop	3	8	62	37	
7. Slide[2]	0	0	0	0	0
8. Skip	3	13	62	38	
9. Underhand Roll	4	10	90	10	
10. Underhand Throw	6	21	71	29	
11. Overhand Throw	3	11	45	55	
12. Kick	4	12	58	42	
13. Continuous Bounce	3	10		50	50
14. Catch	7	29	66	34	
15. Underhand Strike	1	5		100	
16. Overhead Strike[2]	0	0	0	0	0
17. Forehand Strike[2]	0	0	0	0	0
18. Backhand Strike[2]	0	0	0	0	0
19. Sidearm Strike	1	3		100	
20. Even Beat[2]	0	0	0	0	0
21. Uneven Beat[2]	0	0	0	0	0
22. Accent and Phrasing[2]	0	0	0	0	0
23. Imitation	1	5	100	0	0
24. Communication[2]	0	0	0	0	0

[1] See note #1, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 25. Attentiveness of TMI Students to the Teaching-Learning Activities of the Module: Body Management.

TPO			N	Adj. N[1]	Percent of Adjusted N[1]		
					High	Moderate	Low
Body Awareness	1.	Body Actions	48	206	12	38	50
	2.	Body Parts	37	178	39	50	11
	3.	Body Areas	14	39	17	57	26
Awareness of Environment	4.	Shapes and Sizes	10	50	90	10	
	5.	Direction	31	131	91	9	
	6.	Space[2]	0	0	0	0	0
Body Postures	7.	Static Posture	12	41	66	32	2
	8.	Dynamic Posture	14	70		100	
	9.	Pull-Push-Turn[2]	0	0	0	0	0
	10.	Carrying[2]	0	0	0	0	0
Controlling the Body	11.	Rotation	10	52	58	23	19
	12.	Upright Balance[2]	0	0	0	0	0
	13.	Inverted Balance[2]	0	0	0	0	0
	14.	Dynamic Balance	19	97	48	38	14
	15.	Climbing[2]	0	0	0	0	0

[1] See note #2, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 26. Attentiveness of TMI Students to the Teaching-Learning Activities of the Module: Fundamental Skills.

	TPO		N	Adj. N[1]	Percent of Adjusted N[1]		
					High	Moderate	Low
Locomotor Skills	1.	Run	26	106	65	23	12
	2.	Leap[2]	0	0	0	0	0
	3.	Horizontal Jump	44	198	37	48	15
	4.	Vertical Jump	48	148	66	17	17
	5.	Hop	27	124	60	27	13
	6.	Gallop	22	110	91	9	0
	7.	Slide[2]	0	0	0	0	0
	8.	Skip	28	116	33	42	25
Object Control Skills	9.	Underhand Roll	19	62	89	11	0
	10.	Underhand Throw	35	156	61	28	11
	11.	Overhand Throw	32	132	50	41	9
	12.	Kick	38	156	54	30	16
	13.	Continuous Bounce	12	86	40	35	25
	14.	Catch	37	276	23	64	13
	15.	Underhand Strike	7	35	93	7	0
	16.	Overhead Strike[2]	0	0	0	0	0
	17.	Forehand Strike[2]	0	0	0	0	0
	18.	Backhand Strike[2]	0	0	0	0	0
	19.	Sidearm Strike	12	34	38	32	30
Rhythmic Skills	20.	Even Beat[2]	0	0	0	0	0
	21.	Uneven Beat[2]	0	0	0	0	0
	22.	Accent & Phrasing[2]	0	0	0	0	0
	23.	Imitation[2]	0	0	0	0	0
	24.	Communication[2]	0	0	0	0	0

[1] See note #2, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 27. Student Willingness to Participate in the Teaching-Learning Activities of the Module: Body Management.

	TPO	N	Adj. N[1]	Percent of Adjusted N[1]			
				Anxious	Willing	Neutral	Unwilling
Body Awareness	1. Body Actions	49	209	9	28	62	1
	2. Body Parts	46	187	41	14	45	0
	3. Body Areas	12	79	52	28	20	0
Awareness of Environment	4. Shapes & Sizes	10	50	90	10	0	0
	5. Direction	31	130	92	8	0	0
	6. Space[2]	0	0	0	0	0	0
Body Postures	7. Static Posture	22	82	48	43	9	0
	8. Dynamic Posture	36	180	50	50	0	0
	9. Pull-Push-Turn[2]	0	0	0	0	0	0
	10. Carrying[2]	0	0	0	0	0	0
Controlling the Body	11. Rotation	10	50	77	23	0	0
	12. Upright Balance[2]	0	0	0	0	0	0
	13. Inverted Balance	12	36	25	50	25	
	14. Dynamic Balance	15	90	55	17	28	
	15. Climbing[2]	0	0	0	0	0	0

[1] See note #2, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

TABLE 28. Student Willingness to Participate in the Teaching-Learning Activities of the Module: Fundamental Skills.

	TPO	N	Adj. N[1]	Percent of Adjusted N[1]			
				Anxious	Willing	Neutral	Unwilling
Locomotor Skills	1. Run	25	81	59	39	1	1
	2. Leap[2]	0	0	0	0	0	0
	3. Horizontal Jump	37	199	36	49	12	3
	4. Vertical Jump	35	163	63	30	3	4
	5. Hop	24	123	63	24	5	8
	6. Gallop	38	154	86	13	1	
	7. Slide[2]	0	0	0	0	0	0
	8. Skip	28	115	37	45	15	3
Object Control Skills	9. Underhand Roll	33	75	83	11	4	2
	10. Underhand Throw	38	160	61	31	8	
	11. Overhand Throw	38	139	53	27	15	5
	12. Kick	45	164	43	46	7	4
	13. Continuous Bounce	18	88	46	38	5	11
	14. Catch	76	258	35	27	31	7
	15. Underhand Strike	8	40	44	41	15	
	16. Overhead Strike[2]	0	0	0	0	0	0
	17. Forehand Strike[2]	0	0	0	0	0	0
	18. Backhand Strike[2]	0	0	0	0	0	0
	19. Sidearm Strike	11	34	25	38	33	4
Rhythmic Skills	20. Even Beat[2]	0	0	0	0	0	0
	21. Uneven Beat[2]	0	0	0	0	0	0
	22. Accent & Phrasing[2]	0	0	0	0	0	0
	23. Imitation[2]	0	0	0	0	0	0
	24. Communication[2]	0	0	0	0	0	0

[1] See note #2, page 317 at the end of this appendix.

[2] Not selected by field test teachers.

Note 1. Adjusted N is the result of multiplying the teacher N times a teacher weight. The teacher weight was derived by combining the ratings of the degree to which each field test teacher implemented I CAN as intended and consultant estimates of teacher quality. High (H), Moderate (M) and Low (L) ratings on each dimension were reviewed with teachers receiving "5 weight" when they scored H:H and H:M, 3 weight teachers included the combinations M:M and H:L and 1 weight teachers included M:L and L:L.

Note 2. The adjusted N for this table is derived from multiplying the teacher weight (as obtained in note one above) times the number of students identified in each response category and the obtained value was then averaged across the focal points of the TPO.

APPENDIX N

DEVELOPMENT, IMPLEMENTATION, AND EVALUATION OF THE I CAN TEACHER'S GUIDE

FIRST DRAFT

DEVELOPMENT, IMPLEMENTATION, AND EVALUATION
OF THE
I CAN TEACHER'S GUIDE

1.0 Introduction

One of the major goals in the development of the I CAN curriculum was the implementation of effective in-service training procedures. A vast amount of information has been amassed and synthesized into the I CAN materials. But without effective implementation, this knowledge would be of little value to the TMI student. In order to insure that the I CAN systematic in-service training is imperative.

The potential users of the I CAN materials have a wide variety of backgrounds and skills. Effective in-service training must insure that all teachers have the particular skills needed to implement the I CAN curriculum. Thus, a systematic identification of these skills was completed and the Teacher's Guide was written in a series of self-instructional modules. This form allowed in-service training to be individualized to meet the needs of the variety of teachers, for which it was intended.

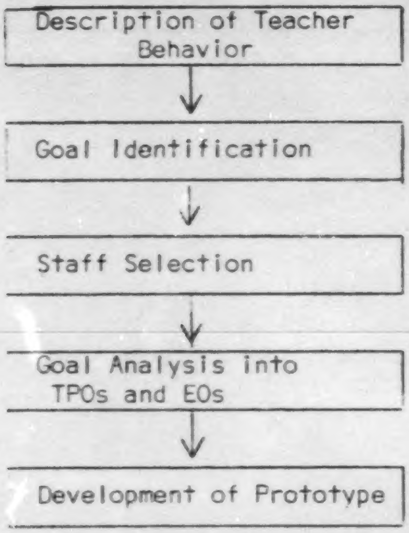
The prototype guide was used to train the field-test teachers implementing the I CAN curriculum. Evaluative data was thus collected in a wide variety of educational settings and from teachers with varied backgrounds and skills. The data was then used to revise the Teacher's Guide so it would provide an effective set of in-service training modules.

2.0 Procedural Models

Three basic procedural models were used in producing the revised Teacher's Guide, a model for development, a model for implementation, and a model for evaluation.

2.1 Model for Development

A systematic five-step model was used in developing the prototype Teacher's Guide:


Description of Teacher Behavior
Goal Identification
Staff Selection
Goal Analysis into TPOs and EOs
Development of Prototype

The teacher behavior model upon which the I CAN materials were based served to identify the necessary skills needed by users of the I CAN materials. This model formed the basis of identifying the long-range goals of the in-service training modules. The goals were identified by the I CAN project staff as follows:

1. To plan an individualized program using the I CAN materials.
2. To assess individual student status
3. To prescribe according to individual student needs.
4. To teach in response to each student's learning style.
5. To evaluate student progress toward prescribed goals.

Three staff members were then selected, all experienced teachers in special education and/or physical education. The staff then analyzed the above goals and derived the following TPOs and EOs:

TPO 1: The teacher will be able to correctly use the organization, structure and logic of the I CAN curriculum to develop a long-term plan.
EO1: To understand the structure of the I CAN materials.
EO2: To design a long-term plan

TPO 2: The teacher will be able to assess student status as defined by the objectives of the I CAN curriculum.
EO1: To assess student status.

TPO 3: The teacher will be able to prescribe daily lessons, based on need assessment, using the TLAs and activity

participation materials of the I CAN curriculum.
EO1: To design daily lessons.

TPO 4: The teacher will be able to use alternate teaching strategies and organization procedures in teaching the I CAN materials.
EO1 : To organize and move activity groups.
EO2 : To use alternate teaching strategies.

TPO 5: The teacher will be able to evaluate and record pupil progress and determine whether to recycle or terminate instruction.
EO1: To evaluate and record pupil progress.
EO2: To decide to terminate or recycle instruction.

Each staff member was assigned to write a prototype module for one or more TPOs. The procedure followed by each developer is outlined in the flowchart (Figure 1). Each developer was given the following set of design specifications for the modules:

1. Focus points for instruction should be developed in sequential form for each EO.

2. TLAs should be written for each focus, paralleling the format used in the student's I CAN material whenever possible.

3. Each focus point should be evaluated in one or more post-test items at the end of each module.

4. The written text should present the material in a readable format, appropriate for all types of teachers, illustrated wherever possible by line drawings.

2.2 Model for Implementation

A second procedural model was used in implementing the curriculum and the in-service training modules. The model is referred to as the Direct Service Model and is an adaptation of the Active Response Inservice Training Method (Burke and Rowland, 1971).

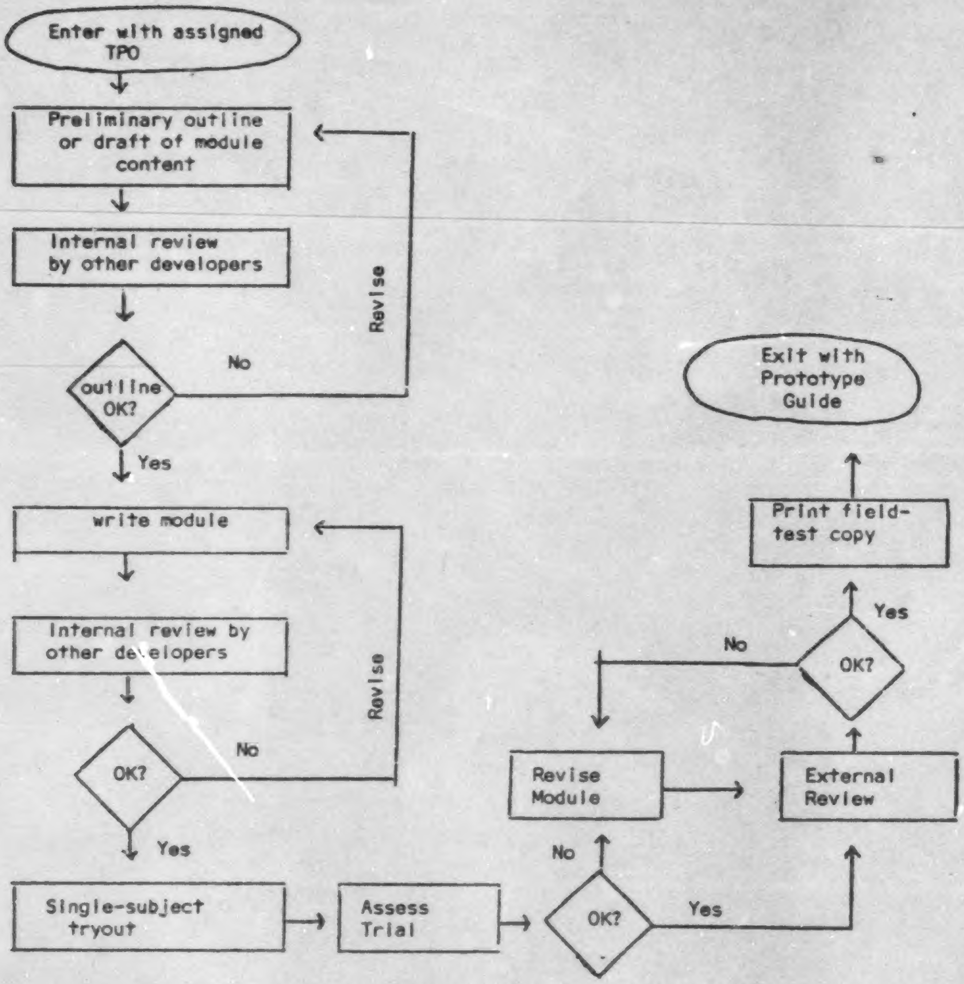
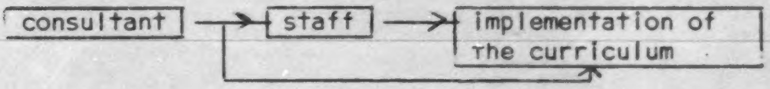

Enter with assigned TPO
Preliminary outline or draft of module content
Internal review by other developers
outline OK?
No
Revise
Yes
write module
Internal review by other developers
OK?
No
Revise
Yes
Single-subject tryout
Assess Trial
OK?
Yes
No
Revise Module
External Review
OK?
No
Yes
Print field-test copy
Exit with Prototype Guide

Figure 1

Direct Service Model

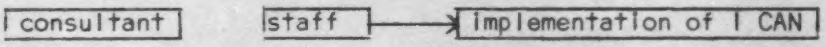
1. The first step is the identification of the teacher competency essential to the proper implementation of the I CAN curriculum. This is accomplished as a cooperative effort by the I Can consultant and the teacher. Direct attention to the competencies (Performance Objectives) stated in the Teacher's Guide defines training areas specific to the implementation of the I CAN curriculum.



2. The second step is the assessment of the teacher's status relative to the competency. Assessments are made to further define or to identify the status of the teacher concerned. These assessments may be the formal measures derived from class observations via the I CAN monitoring forms or assessments from the post tests at the end of each inservice module. They may also be informally determined by the I CAN consultant through the teacher reactionnaires, debriefing sessions, on the spot observations or through informal conversations with the staff. The I CAN consultant may assess the teacher

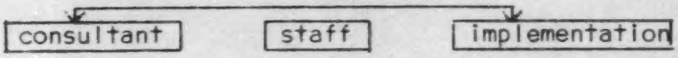
consultant
staff
implementation of I CAN

or the staff may assess themselves.



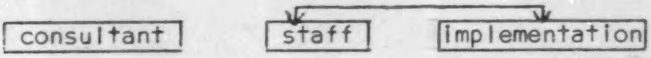
3. The third step may involve a demonstration of the correct procedure necessary to implement the I CAN materials, by the consultant, in the school setting.

When the instructional materials have been deficient, the consultant demonstrates the correct use of the I CAN materials to the staff in the classroom with the students. A verbal explanation may accompany the demonstration to clarify the consultant's procedures. Verbal explanations without physical demonstrations are used only when the implementation problem is one that does not directly involve the students, such as long term planning or the construction of a lesson plan. Verbal demonstrations may also be used when it is certain that the implementation procedure will work because it is appropriate to the students in that situation and does not need to be tested by the consultant. At this point in the inservice training the demonstration step serves two purposes; 1. it allows the staff to become familiar with the implementation procedures through modeling of their correct use; 2. it is possible, during the demonstration, for the consultant to adjust the procedures if needed to better fit the students, the learning goals, and the actual situation. If the demonstration reveals that adjustments must be made then the inservice trainer makes these adjustments and repeats the demonstration.



4. The fourth step involves the development of the staff's skills in using the I CAN materials.

The staff member is given the opportunity for active appropriate practice with his own students. During this time the consultant observes and provides the staff with cues and prompts as needed while simultaneously reinforcing them for their approximate and correct usage of the implementation procedures. This practice should occur immediately following the completion of the inservice modules of the demonstration by the inservice trainer. The time needed for instruction will depend upon the complexity of the competency. Written guides describing the implementation procedures in an outline form should always be left with the staff to reinforce their skills in the absence of the consultant. The trainer should retain a carbon copy of the procedure for follow up reference.

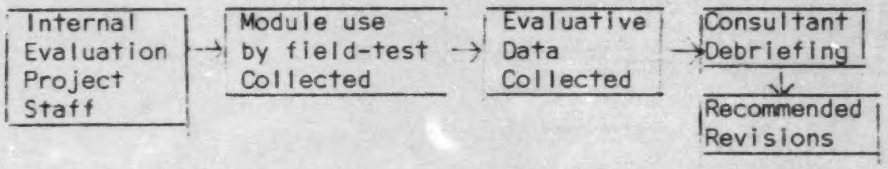


5. The fifth step concerns follow up with the staff member on the implementation and progress of the inservice procedure.

The inservice trainer follows up the progress of the teacher training as it is being carried out by the staff in the classroom by providing any needed adjustments in procedures, re-assessments of students, or additional instruction of staff in the implementation procedures. The consultant discusses student performance data with staff during informal meetings in order to evaluate the progress and direction of the curriculum implementation. Follow up may include debriefing sessions with groups of staff people from neighboring centers after school hours.

These sessions would be used only to reinforce and extend understanding of concepts already being used by staff with students, such as assessment activities, progress record keeping, terminology and etc. Sessions of this type would include debriefing sessions related to sections of the Teacher's Guide that may need revision.

2.3 Model For Evaluation


Internal Evaluation Project Staff
Module use by field-test Collected
Evaluative Data Collected
Consultant Debriefing
Recommended Revisions

The major steps in the evaluation of each module of the Teacher's Guide are outlined above. Each of the field-test teachers were assigned to complete all modules of the Teacher's Guide so that complete data could be recorded. Data was collected using two major sources: the field-test teachers and the consultant. The competency of the teachers was assessed through post-test items, self-reported judgments and by the amount of additional consultant intervention needed to develop adequate classroom performance on each module.

Consultants were also used in evaluating each module after the data had been collected. Debriefing sessions were held to discuss the inadequacies noted in each module. A list of recommended revisions was then compiled and approved by the consultants as well as the project staff.

3.0 Evaluation Questions and Data

3.1 Questions

The major evaluative question was: Did the Teacher's Guide help field-test teachers develop the competencies necessary to implement the I CAN curriculum as it was intended? This major question was broken down into several direct questions. The following direct questions referred to each module of the Teacher's Guide:

Module One. Planning

1. Are the teachers able to correctly identify the organization, structure and logic of the I CAN curriculum?
2. Do the teachers use the organization, structure and logic of the I CAN to develop a long-term (6-8 week) instructional plan?

Module Two. Assessment

1. Do the teachers assess student status as defined by the objectives of the I CAN curriculum?

Module Three. Prescription

1. Do the teachers prescribe daily lessons based on need assessment using the teaching-learning activities and activity participation materials of the I CAN curriculum?

Module Four. Teaching

1. Do the teachers organize activity groups in a manner that provides for individualized instruction and maximum participation?
2. Do the teachers use alternate teaching strategies to individualize instruction?

Module Five. Evaluation

1. Do the teachers evaluate and record pupil progress?
2. Do the teachers decide whether to terminate, recycle or continue instruction?

One additional direct question was: Did classroom teachers (generally trained in special education) differ from physical education specialists in their ability to implement the curriculum?

3.2 Data

Each direct question above was investigated by evaluating four sources of data: the post-test for each module, a teacher reactionnaire on each module, consultant ratings of each teacher on each question, and consultant intervention estimates on each question.

3.2.1 Module Post-Tests

Each direct question referred to an enabling objective in a module. Thus the post-test items which tested the focal points under each EO could be grouped according to the EOs included in each module. Teachers were required to complete all the post-test items without referring back to the written material. Whenever less than 80% of the teachers answered an item correctly, the material for that particular EO was marked for possible revision.

3.2.2 Teacher Reactionnaires

Each module also contained a teacher reactionnaire which contained Likert-type items indicating the teacher's perception of the quality of the module. The items were designed to reflect the teacher's opinion on three major areas: the general content of the module, the amount of learning they felt had occurred as a result of the module, and their attitude toward the material in each module. An open-ended question was also included on the reactionnaire. The items were scored on a five-point Likert-type scale. Reactionnaire results were summarized for each module and each item that 20% or more of the teachers rated lower than two points from the positive was listed.

3.2.3 Consultant Ratings

Each consultant was asked to rate the teacher, on a yes or no basis, on each direct question. This was done after each module had been covered by the teacher and after the consultant had observed the actual classroom performance relating to the question. The consultant gave no rating if no opportunity to directly observe the behavior had occurred. All negative ratings were recorded and the module sections listed for revision if more than 20% of the teachers were unable to perform an EO.

3.2.4. Consultant Intervention Estimates

Since the above consultant ratings followed both the teacher's use of a module and consultation prior to applying the material in the classroom, a separate estimate of the amount of consultation was recorded. Each consultant rated the time spent assisting a teacher on each EO according to the following scale:

1 = never. No intervention necessary.
2 = seldom. Tutorial assistance offered only for refinement. No demonstration necessary
3 = occasionally. Offered tutorial assistance two or three times via a demonstration.
4 = often. Offered tutorial assistance more than three times via a demonstration.
5 = always. Initiated tutorial assistance during every visit.

When 20% of the consultants gave a question a 4 or 5 rating, the related material in the modules was listed for revision.

4.0 Consultant Debriefing

After all areas needing revision were identified, consultant debriefings were held to aid in identifying why deficiencies existed. During these meetings, the parts of modules listed for revision were recorded. This resulted in a list of recommended revisions for each module, including suggestions and reasons for the revisions. This total list was then submitted to four members of the project staff: two evaluators, one project designer, and one member of the Teacher's Guide development team. Each revision approved by at least two of this group was incorporated in the revised Teacher's Guide.

5.0 Results of Evaluation

In summarizing the results of the Teacher's Guide evaluation, data supporting each direct question will be given. The teacher reactionnaire results and consultant debriefing comments were used to generate the actual form of the revision. Only major revisions are discussed--a list of all revisions is appended in this report. Most revisions which are not included in the following material were dictated by changed in the I CAN materials themselves. Other revisions (e.g. changing post-tests to self-tests) were dictated by the fact that the potential users of the Teacher's Guide would no longer be field-test teachers with consultant readily available to supplement the material.

5.1 Module I: Planning

5.1.1 Question I: Are the teachers able to correctly identify the organization, structure, and logic of the I CAN curriculum?

5.1.1.1 Data

Post-Tests: 100% of the teachers answered all items correctly.

Reactionnaire: At least 80% of the teachers reacted positively to all items with the exception of :

a. 23% were unsure of what they were supposed to be learning.
b. 59% felt they needed consultant assistance in in addition to the material presented.

Intervention: Consultants reported little or no intervention in all cases.

Ratings: All teachers demonstrated this ability.

5.1.1.2. Revisions

a. Eliminate game activity due to negative comments on reactionnaire.

b. expand section on teacher behavior model to further clarify the material.

5.1.2. Question 2: Do the teachers use the organization, structure, and logic of I CAN to develop a long-term instructional plan?

5.1.2.1. Data

Post-tests: At least 80% of the teachers answered all items correctly with the following exceptions:

a. 59% could not state the process for deciding how much time should be spent on each module.

b. 86% could not generate a long-term plan without consultant assistance.

c. 100% could not generate an alternate plan using other suggested approaches.

Reactionnaire: At least 80% reacted positively to all items, with the following exception:

72% felt they needed consultant assistance.

Intervention: 45% of the teachers needed frequent intervention in order to design a long-term plan.

Ratings: 27% of the teachers never developed an acceptable long-term plan even with consultant assistance.

5.1.2.2. Revisions

a. separate the material on long-term planning from material on logic and structure. Write a separate module on long-term planning.

b. place long-term planning later in the Teacher's Guide so the teachers have greater understanding of I CAN before attempting to develop a plan.

c. expand the information, give step-by-step procedures for designing a plan.

d. expand logic and structure section to explain developmental sequence of I CAN.

5.2 Module 2: Assessment

5.2.1. Question 1: Do the teachers assess student status as defined by the objectives of the I CAN curriculum?

5.2.1.1. Data

Post-test: At least 80% of the teachers answered all items correctly with the following exceptions:

a. 32% could not define an "assessment activity".

b. 36% could not state the procedure for judging multiple foci.

Reactionnaire: 80% reacted positively to all items with the following exceptions:

a. 54% felt they needed consultant assistance in addition to the material in the module.

b. 23% were uncertain of what they had learned.

Intervention: Over 80% of the teachers received most needed occasional intervention.

Ratings: Consultants felt that 54% of the teachers were unable to assess with 90% accuracy.

5.2.1.2. Revisions

a. rewrite introductory material and clearly define the broad concept of assessment used by I CAN.

b. explain step-by-step use of the Student Performance Score Sheet and Teaching/Assessing Activities.

c. eliminate references to how difficult assessment is, concentrate on the positive.

d. discuss consequences of judgment errors.

5.3 Module 3: Prescription

5.3.1. Question 1: Do the teachers prescribe daily lessons based on need assessment using the teaching-learning activities of the I CAN materials?

5.3.1.1. Data

Post-test: All items were answered correctly by at least 80% of the teachers, with the exception of one which asked where assessment activities should be placed in a lesson.

Reactionnaire: All items were positive by at least 80% of the teachers, with the following exception:

a. 50% felt they still needed consultant assistance.

Intervention: Consultants intervened frequently with 32% of the teachers, particularly in pulling TLAs summarizing lesson, and using game activities. Little intervention was required by 80% of the teachers in introducing lessons or construction of the lesson body.

Ratings: 80% of the teachers introduced lessons, practiced focal points in the body of the lesson and used games related to the focal points. Less than 80% pulled appropriate TLAs (68%) and summarized their lessons in the actual classroom (46%).

5.3.1.2. Revisions

a. rewrite introduction, emphasizing individual assessment as the basis for prescription, and methods of individualizing instruction.

b. write a step-by-step procedure for organizing individualized instruction.

c. give more examples of good lesson planning.

5.4 Module 4: Teaching

5.4.1. Question 1: Do the teachers organize activity groups in a manner that provides for individualized instruction and maximum participation?

5.4.1.1. Data

Post-test: 80% answered all questions correctly, with the exception of:

a. 41% could not define on task time.

b. 51% could not state two strategies for individualizing instruction.

c. 51% could not state the amount of time spent in organizing the class.

Reactionnaire: 80% responded to all items positively, except:

45% felt they needed consultant assistance in addition to the material in the module.

Intervention: Consultants reported frequent intervention was needed by 45% of the teachers.

Ratings: 80% of the teachers were able to demonstrate this ability in the classroom after reading the module and receiving consultant assistance.

5.4.1.2. Revisions

a. give more thorough explanation of individualized instruction.

b. explain on task time more fully and give examples of good organization.

c. include discussion of class organizing procedures in appended material.

5.4.2. Question 2: Do the teachers use alternate teaching strategies to individualize instruction:

5.4.2.1. Data

Post-test: All items were answered correctly by at least 80% of the teachers, with the following exception: 41% could not order a set of questions by their cognitive difficulty.

Reactionnaire: 80% of the teachers reacted positively to all items, with the following exceptions:

a. 23% felt there was too much information.

b. 50% felt they needed consultant assistance.

c. 36% were uncertain about what they had learned.

Intervention: 80% or more of the teachers needed little intervention on this module.

Ratings: 80% or more were able to successfully demonstrate this ability in the classroom.

5.4.2.2. Revisions

a. delete excess material--discuss general strategies to implement what already appears on the Teaching Cue sheets.

b. eliminate backward chaining as a strategy--it was never used, clarify discussion of inquiry techniques.

5.5 Module 5: Evaluation

5.5.1. Question 1: Do the teachers evaluate and record pupil progress?

5.5.1.1. Data

Post-test: 100% correct.

Reactionnaire: 80% or more answered all items positively with the exception of:

a. 23% felt there was too much information.

b. 23% felt there were too many unfamiliar words, confusing.

c. 50% felt they needed consultant assistance.

d. 32% were uncertain of what they had learned.

Intervention: little intervention reported by consultants.

Ratings: most teachers were rated as not demonstrating this ability in the classroom.

5.5.1.2. Revisions

a. rewrite and motivate teachers to keep records upon which to base decisions.

b. clarify the proper use of evaluation forms provided with the materials.

5.5.2. Question 2: Do the teachers decide whether to terminate, recycle, or continue instruction?

5.5.2.1. Data

Post-test: All teachers answered all items correctly.

Reactionnaire: 80% of the teachers responded positively with the following exception: 36% felt they needed consultant assistance in addition to the material in the guide.

Intervention: Over 80% of the teachers needed little intervention from the consultants.

Ratings: Over 80% of the teachers demonstrated this ability in the classroom.

5.5.2.2. Revisions

a. expand this section somewhat, give a few more examples and table decision process to clarify this point.

6.0 Revision Procedures

Two of the original writers were used to revise the Guide. Each writer was given the list of revisions, a copy of the open-ended comments from the teacher reactionnaires, and a copy of consultant comments from the debriefing sessions. After making the appropriate revisions, each module was given to two of the consultants for review and approval. The approved modules were then assembled into the revised Teacher's Guide.

7.0 Summary

The prototype Teacher's Guide proved to be an effective in-service training tool. The only major revision was the addition of the module on long-term planning. Since the prototype Guide was used with consultant assistance, some sections were expanded so that the Guide was self-explanatory. Minor revisions were made in format and content paralleled revisions in the I CAN materials. The revised Teacher's Guide should prove to be an effective in-service training procedure for teachers with varied backgrounds to effectively use the I CAN materials.

APPENDIX O

THREATS TO INTERNAL AND EXTERNAL VALIDITY OF THE PRETEST-POSTTEST DESIGN

The one-group, pretest-posttest design has several classes of extraneous variables which may produce effects that could be confounded with the effect of the experimental treatment. Of the eight classes of variables listed as threats to internal validity, Campbell and Stanley identify this design as having strengths in two classes, selection and mortality, and weaknesses in five classes, history, maturation, testing, instrumentation, and interaction of selection with each of the above. The class labeled "regression" has not been identified as a strength or weakness. Each class of variables, as they relate to this experiment, will be discussed in the following paragraphs.

Threats to Internal Validity

History is the term which refers to the possible effect of specific events, in addition to the experimental variable, which occur between the first and second measurement. To be a plausible explanation of change, an event should have occurred to most of the subjects involved. Since this investigation collected data on students in different communities, under the direction of different teachers and at different times, it seemed unlikely that extraneous events would have occurred to most of the subjects. The concern for history as a rival hypothesis was further reduced in that the treatment was of short duration. Although the experimental isolation associated with the laboratory cannot be assumed in studies on teaching, it may be present in the special case of research with the TMR. The limited mental capacity of the TMR to observe and process information sets him apart from many phenomena which could influence post treatment performance. Due to the combination of the above characteristics of this study, history, as a rival hypothesis, was considered unimportant.

Maturation is the class of variables (biological or psychological) which varies with the passage of time, relatively independent of external events. Maturation was conceded to be a weakness of the design used in this investigation. Its effect, however, was greatly reduced due to the short term nature of the treatment.

Testing is the class of variables which refers to the effect of taking a pretest on the posttest performance of subjects. The proper implementation of I CAN requires a pretest, and therefore pretesting was part of the instructional treatment. Since each group included in the design received the pretest as a part of the instructional treatment, it was not considered to be a systematic biasing factor.

Instrumentation is the class of confounding variables which refers to the reliability of measurement across time. Instrument calibration and changes in an observer are examples of possible sources of measurement error that are independent from the treatment. Although the observer was the same on the pre-and posttest assessments, it was possible that changes in observer skill, familiarity with the instruments or modification of personal standards of judgment could have exerted an influence on mean differences that was independent of the treatment. The data and conclusions obtained in this study should be interpreted in light of this weakness. Since an important quality of the I CAN curriculum is that it can be replicated, the problem of instrumentation could be overcome by conducting additional studies which control for this source of invalidity.

Regression has been documented as a phenomenon that inflates change scores when students have been selected on the basis of their extreme scores. Because of the nature of student selection in this study, regression was not a concern.

Threats to External Validity

Threats to external validity represent a specificity of the effects of the treatment to some limited set of conditions and are therefore threats to generalizability. For the one group, pretest-posttest design, Campbell and Stanley (1966) list the interaction of testing and treatment, and the interaction of selection and treatment as definite weaknesses, and reactive arrangements as a potential source of concern. Each of these concerns is discussed below as it relates to this study.

Interaction of testing and treatment refers to a situation where the experimental effects attained are unique to a pretested population. Since a pretest always occurs with the proper implementation of I CAN, it becomes part of the treatment and therefore was not a serious limitation of the design for this study.

Interaction of selection and treatment refers to the specificity of obtained results to the population tested. When difficulty in getting subjects occurs, as indicated by a high refusal rate (which was quite the opposite for this study), this interaction effect can be very serious. The key concern is: are there characteristics of the schools and/or subjects which are highly unique to the experimental situation? Since the number of schools included in this investigation was relatively large and since they were widely divergent in size, geographical location and instructional programs, this type of interaction was considered of little consequence to the initial sample. The interaction of selection and treatment does, however, reduce the generalizability of this investigation to this restricted population.

Reactive arrangements refer to the artificiality of the experimental setting and the student's knowledge of the experiment. Within the context of this study, pre- and posttesting were built unobtrusively into the instructional program and conducted, as was the treatment, by regular staff members. The uniqueness of the TMI population is such that students' awareness of their involvement in an experiment is remote. This source of invalidity was judged to pose little threat to the external validity of this investigation.

APPENDIX P

DESCRIPTION OF VARIABLES USED IN THE REGRESSION ANALYSIS ON STUDENT CHARACTERISTICS AND PERFORMANCE

Description of Variables Used in the Regression Analysis on Student Characteristics and Performance

Variable Number	Label	Description	Data Range
1	T. Type	Teacher Type (1 = Physical Education, 2 = Classroom)	1,2
2	T. Imp.	Teacher Implementation of I CAN (1 = high, 2 = moderate, 3 = low)	1-3
3	T. Qual.	Consultant estimate of the qualities associated with "good" teaching (1 = high, 2 = moderate, 3 = low)	1-3
4	T. Wt.	A two dimentional combination of variables 2 and 3 (1 = high, 2 = moderate, 3 = low)	1-3
5	Age	Student age to the nearest year	3-23
6	Sex	Student sex (1 = male, 2 = female)	1,2
7	Disabil.	Student disabilities (1 = unknown, 2 = Down's Syndrome, 3 = brain damage, 4 = other)	1-4
8	IQ	Student IQ (1 = high [50+], 2 = moderate [40-49], 3 = low [30-39], 4 = severe [-30])	1-4
9	Absence	Student attendance patterns (1 = high [2 days/mo.], 2 = moderate [1 day/mo.], 3 = low [-1 day/mo.])	1-3
10	Performance	Student performance in the school (1 = high [1 year +], 2 = low [-1 year])	
11	Drugs	Use of prescribed drugs (1 = yes, 2 = no)	1,2
12	Atten.	Attentiveness to instruction (1 = very good, 2 = good, 3 = fair, 4 = poor, 5 = very poor)	1-5
13	S. Help	Self help ability (1 = very good, 2 = good, 3 = fair, 4 = poor, 5 = very poor)	1-5
14	Math.	Math ability (1 = high, 2 = moderate, 3 = low)	1-3
15	Verbal	Verbal ability (1 = high, 2 = moderate, 3 = low)	1-3
16	Social	Social adjustment (1 = high, 2 = moderate, 3 = low)	1-3
17	Parti.	Participation in gymnasium activities (1 = high, 2 = moderate, 3 = low)	1-3
18	S. Percp.	Self perception of movement ability (1 = high, 2 = moderate, 3 = low)	1-3

Description of Variables Used in the Regression Analysis on Student Characteristics and Performance Continued.

Variable Number	Label	Description	Data Range
19	Attitude	Attitude towards physical activity (1 = positive, 2 = neutral, 3 = negative)	1-3
20	Health	Health status of the student (1 = good, 2 = moderate, 3 = poor)	1-3
21	Emo. Stab.	Emotional stability (1 = high, 2 = moderate, 3 = low)	1-3
22 - 29	Criterion variables; Run, Horizontal Jump, Hop, Underhand Roll, Underhand Throw, Overhand Throw, Kick, Catch		
30	GR 1	Dummy variable emanating from category 1, variable #7, unknown disability (1 = yes, 2 = no)	
31	GR 2	Dummy variable emanating from category 2, variable #7, Down's Syndrome (1 = yes, 2 = no)	
32	GR 3	Dummy variable emanating from category 1, variable #7, brain damage (1 = yes, 2 = no)	

APPENDIX Q

REVISIONS RECOMMENDED BY FIELD TEST TEACHERS

This appendix contains those recommendations for revision from field test teachers which were judged by the I CAN staff to have strong logical support. It should be noted that these recommendations were written to be used by I CAN evaluators and developers. A good deal of the terminology used is therefore highly specific to I CAN.

I CAN FIELD TEST (PHASE II)

	Curriculum Structure	Raw Data*
1.	Include in the stem of the curriculum objective any prerequisite skill learnings which are judged essential to achievement of the objective and which are included in the curriculum structure (other TPOs). This does not apply to words that are important to communication (knee, foot, etc.). Words should be italicized in the text of the TLA and perhaps footnoted to TPOs which teach these terms.	12
2.	The focal points listed by enabling objective are randomly ordered and should be sequenced for assessment and/or teaching. Teaching should hold priority over assessment, however.	13,70 75
3.	Expand the enabling objectives accompanying a TPO to include skills less difficult, but leading toward a mature pattern of performance. This is to be done to accommodate trainable youngsters not yet able to learn the mature pattern, as well as those instances in which day-care youngsters are included as part of trainable classes and will be exposed to I CAN. The addition of EO 1 and 2. TFF**:D2,48,90	14,69 84.4 85
4.	Change the heading on the TPO Sheets (Blue) to read: Enabling Objectives with Focal Points for Activity centered on the page and together.	68
5.	A focal point should be added to the EO3, mature pattern, that gets at the smooth, coordinated/integrated movement pattern that is lacking in our materials as they now exist. This would be an addition that would go across all TPOs (F.S.) and would be accompanied with T.C. sheet encouraging practice and giving hints to the teacher on how to help direct this "smoothness".	88 89
6.	"Eyes focused on the target/ball..." generally will be included as a focal point at EO2 of skills where this is appropriate. This is to be defined as a part of the rudimentary performance of that skill.	100

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*Reference is to page numbers of a Raw Data Notebook compiled for use by evaluators and developers.

**TFF refers to numbered pages of a notebook containing all Teacher Feedback Forms.

I CAN FIELD TEST (PHASE II)

Teaching Learning Activities - General	Raw Data*
1. Rename TLAs to Teaching Cues and use in association with the Teaching Assessing Activities.	1,5
2. Provide code to the particularly good or effective Play and Practice Activities (old Game Activities) directly on the TAA Cue Sheet.	2 82
3. Provide some of the type of sequencing found in Note #1 on page , of this list into the TLCs and/or EOs.	3
4. Materials needed for teaching a TLA (TLC?) should be listed by teaching strategy: Environmental Manipulation: Manipulation: Modeling:	7,6
5. Indications to practice and/or reinforce approximations to desired performance levels should be included in non-verbal as well as verbal cues.	9,8
6. Modify the TLA format from non-verbal and verbal cues to "manipulation cues" and "visual-verbal cues". "Verbal cues" as a column implies verbal only and is therefore inconsistent with the stated objectives of the curriculum. (See page 7 of the Data Notebook for an example of this modification.)	10,9.2
7. Extend the cues written under modeling to include gesture, point or "tell". This modification will be consistent with the objectives and operationalize the change suggested in 6 above.	10
8. There is some indication that more ideas are needed in the environmental manipulation section of the TLAs.	35
9. Students respond positively to music. Consider including suggestions for using music (records, tapes) in teaching many skills -- not just rhythmical skills -- F.S., H/F and etc. TFF**:D10, (See pp. 60-67 of Raw Data Notebook for suggestions).	
10. Consider interspersing the Verbal Cues with the teaching strategies in the TLA (Teaching Cues) sheet -- eliminates a separate column for Verbal Cues and more closely associates the strategy of the Verbal Cue.	50 9.2
11. Consider the use of phrases in the wording of the body of the TLA, i.e., under manipulation, modeling	51

Teaching/Learning Activities (Continued)	Raw Data*
one could list phrases like this – ∼∼∼ rather than -- writing this out in complete sentences or partial sentences -- partial phrases as it now appears.	
12. Under the General Directions, identify the correct action and write it under Demonstrate; then eliminate the redundancy by not repeating the above description under Practice and Summary -- perhaps just writing these two terms in large type is sufficient.	52
13. On TLA (Teaching Cue Sheet) list games that are appropriate and list page number for easy reference.	82
14. Student vocabulary for TLAs will be italicized on the TLA Sheet.	84.9

Note #1

STRIKING

1. Hit (hand) a descending balloon (if tossed up for him).
2. Strike a motionless suspended balloon with a pingpong paddle.
3. Strike a swinging suspended balloon with a pingpong paddle.
4. Strike a swinging suspended wiffle ball with a pingpong paddle.

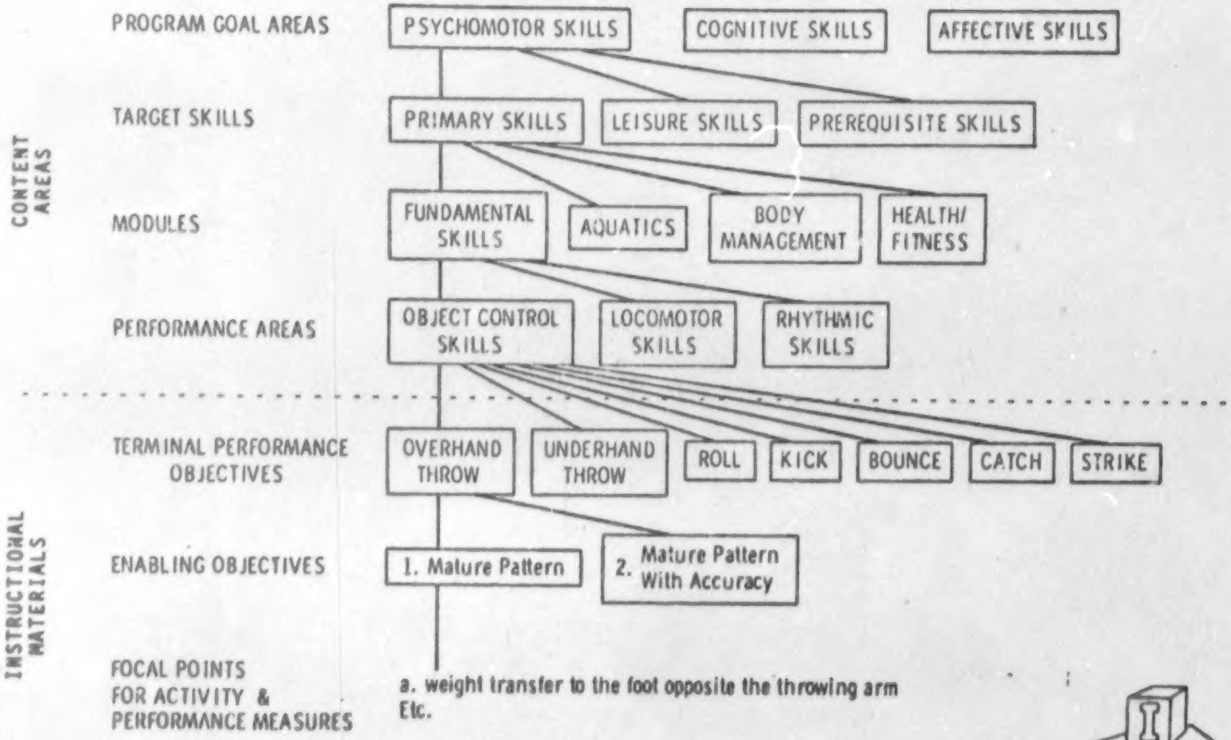
I CAN FIELD TEST (PHASE II)

	Game Activities	Raw Data*
1.	On the game sheets we should note that the equipment, balls, bats, etc., must be consistent with the equipment listed in the statement of objectives to effectively use the game.	36
2.	Criteria for game selection should include: age categories, games for drill, games for use, prerequisite or lead-up games, group size, activity level (sedentary-vigorous), equipment and/or facility constraints.	
3.	In general, the materials lack games for young children -- should be sure that games appropriate for this age group (as suggested above) are included.	74 80
4.	Indicate the age ranges recommended for a game on the game sheet and in the game index.	82

I CAN FIELD TEST (PHASE II)

	Packaging	Raw Data*
1.	Reduce size of document by packaging in performance areas rather than modules. (This could be done by redefining module to be a performance area -- there is support for such a move.)	4
2.	Within each performance area package the TPOs such that they are self-contained -- all materials needed to teach and assess the TPO should be included in the packet. This assumes, however, that each packet is 1) supplemented with the resource bank (other packets) necessary for prerequisite skills, 2) the Teacher's Guide, and 3) the bank of Play-Practice Activities. Includes Developmental Inventory	4.2 17
3.	Add to the introduction, in a prominent place, a schematic which clearly portrays organizational levels and instructional objectives to provide perspective for users. See Attachment A.	4.2
4.	TPO packets should be transportable (visiting teachers, consultants, several classroom teachers using one material set) and easily inserted in the performance area contained (prominent numbers, diagonal marks for a visual filing system, etc.) within the TPO packet (but in a separate fold, place, pocket, etc.). There should be a place to put related materials (drawn from other parts of the resource bank -- prerequisite learnings, games, teacher guide diagrams) that have been selected to aid in the teaching of content related to the TPO. These materials need a separate place to be slipped in and out as needed.	4.2
5.	Add page numbers to the "objectives outline sheet" that precedes each performance area (i.e., page 15 in Fundamental Skills Module). Also, page number should appear opposite each performance area on the Table of Contents in the front of each module.	11,16
6.	Mark materials on edge of modules (diagonal lines, etc.) if a box is provided for teachers to index their own materials.	84.5 & 6

The I CAN Curriculum Structure for Organizing Content & Materials


CONTENT AREAS
PROGRAM GOAL AREAS
PSYCHOMOTOR SKILLS
COGNITIVE SKILLS
AFFECTIVE SKILLS
TARGET SKILLS
PRIMARY SKILLS
LEISURE SKILLS
PREREQUISITE SKILLS
MODULES
FUNDAMENTAL SKILLS
AQUATICS
BODY MANAGEMENT
HEALTH/ FITNESS
PERFORMANCE AREAS
OBJECT CONTROL SKILLS
LOCOMOTOR SKILLS
RHYTHMIC SKILLS
INSTRUCTIONAL MATERIALS
TERMINAL PERFORMANCE OBJECTIVES
OVERHAND THROW
UNDERHAND THROW
ROLL
KICK
BOUNCE
CATCH
STRIKE
ENABLING OBJECTIVES
1. Mature Pattern
2. Mature Pattern With Accuracy
FOCAL POINTS FOR ACTIVITY & PERFORMANCE MEASURES
a. weight transfer to the foot opposite the throwing arm
Etc.

I CAN FIELD TEST (PHASE II)

Developmental Inventory — Raw Data*

1. Alter the SPSS (Score Sheet) such that 15-16 students may be listed on one side of this form. This seems to conform to the typical (and recommended) class size at TMI centers. 15 73

2. Eliminate the absent column from the SPSS. Absences may be noted in the comments section or in the focal point boxes. 18

3. Alter the scoring system on the SPSS to include a mark in the box for the youngster when assessed (whether or not the focal point was achieved). 19

   Suggestion:

   Assessment
   X = Student has focal point upon assessment
   O = Assessed, but not achieved

   Reassessment
   ⊗ = Student has gained the focal point upon reassessment
   Ø = Reassessed, but still not achieved

   or use color coding to indicate differences. 81

4. Alter the directions for scoring on the SPSS to reflect the change in scoring procedure. 20

   Format:

Preassessment	Reassessment
X = Student has	⊗ = Student has
O = Student does not have	Ø = Student does not have

5. The stability criterion for each EO should be written on the SPSS. The fraction -- 4/5, 2/3 -- can be typed in large type beside the EO focal point descriptors. 21

6. The primary response column should be moved to the absent column spot on the SPSS. 22

7. The quantitative element of an enabling objective should be reflected on the Student Score Sheet (involves adding this element to the SPSS in most instances). This is not currently done on our Score Sheets -- only the qualitative elements are now included. 23

	Developmental Inventory (Continued)	Raw Data*
8.	Eliminate the student performance level sheet from the Developmental Inventory. The objective sheet serves as the description of the components of the skill.	24
9.	Denote focal points that should be considered first in assessing by circling the letter, i.e., ⓐ would indicate that if a student does not have - a - one would not assess further - a - is a condition that must exist before proceeding to the other focal points.	25
10.	Add to the directions for using the Developmental Inventory a guideline referring to the procedures involving letters that are circled (as in 9 above).	25
11.	Rewrite introduction or users guidelines to the Developmental Inventory to include: Recommendations 8, 9, 10 above.	
12.	As a part of the inclusion of the stability criterion (#21) onto the Developmental Inventory, a ______ may be placed beside the fraction, i.e., 2/3, as a reminder that the components (focal points) of the EO must be performed 2/3 before an X or 0 is placed in the space.	41
13.	In instances of multiple items to be assessed, i.e., the list of body parts in Body Part I.D., each part must appear on the SPSS even though each is a focal point -- multiple focal points may appear on one TLA.	72

I CAN FIELD TEST (PHASE II)

Recommended Revisions

Long-Term Planning

1. The prerequisite skills area should contain all terminals which ENABLE the desired competency, i.e., hop should be listed for skip--or if the game is a leisure skill (volleyball, horseshoes), the I CAN content which enables these competencies should be cited in the prerequisite box. This will facilitate long-term planning by the teacher. 21

I CAN FIELD TEST (PHASE II)

Recommended Revisions

Implementation

1. Body Management objectives should be taught as selected without assessment. Recording should occur as instruciton occurs and be used to plan emphasis of subsequent lessons on the TPO of interest. 4,6,34

2. The rhythm TPOs of Module III may be more appropriately taught as we are suggesting for Body Management (see above).

3. Introduction to materials should include some information about the adaptations that may be made by teachers in using the materials with different populations. Note that these adaptations are the responsibility of the teacher. Raw 87 Data

I CAN FIELD TEST (PHASE II)

Recommended Revisions

Teacher Training

1. Training should be initiated with a 1-2-day workshop which provides: 4.4 90
    a. perspective of materials type and use
    b. skill in using selected TPOs
    c. knowledge in where to start and why
    d. information on where to get assistance
    e. knowledge of what to expect in subsequent training sessions. Raw 76 Data
2. More information is needed in the teacher's manual on moving groups and how to use other teachers and aides. Raw 78 Data
3. Some comments about the teacher training--didn't like game, couldn't be done without consultant, material complicated after TPO 1. Raw 79 Data
4. Use of "slapping hands" or handshake as an example of a motivational device--add to training manual. Raw 83 Data

I CAN FIELD TEST (PHASE II)

Recommended Modifications

Materials and/or Media

1. Loop films demonstrating mature patterns in listed focal points should be available to teachers.
   **TFF: 4,8,16,32,57,65,80,86,96,106,110.

2. Hap Palmer records cited as being excellent music to be used in teaching a variety of skill areas. (See pp. 60-67, Raw Feedback Notebook for specific references to records, etc.) 38

3. Posters showing the focal points illustrated on the sheet of objectives would be helpful.
   **TFF: 65,96.

4. Single teaching loops, i.e. mature pattern in slow motion may be very helpful. This could extend to sequential lead of skills if economically feasible.

5. The illustrations that are provided to illustrate focal points must conform to those points and should have arrows or lines included to indicate the point of interest to the teacher. Raw Data 77

6. Format--TPO Sheets--illustrations placed to left of objective statement if 1 or 2 are needed; or placed below the objective if 3 or more are needed. Saves much space.

**TFF refers to numbered pages of a notebook containing all Teacher Feedback Forms.